

Project No. 1251-100
Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
1	Mechanical Completion Certificate (MCC)	
2	Ready for Startup Certificate (RFSU)	
3	System Punch Lists	
4	System Limits Marked Up P&ID	
5	System Index	
6	Piping Pre-Commissioning	
	6.01) Piping Test Packs	
	6.02) Piping Pre-commissioning Check Lists	
7	Piping Commissioning	
	7.01) Service Test, GLT, CLT and N2 Purging Certificates	
	7.02) Piping Commissioning Check Lists	
Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
8	Mechanical Pre-Commissioning	
	8.01) System Mechanical Index	
	8.02) Equipment Drawings	
	8.03) Equipment Datasheets	
	8.04) Boxing-up Certificates	

	8.05) Grouting Certificates	
	8.06) Pre-Alignment Certificates	
	8.07) Mechanical Pre-Commissioning Checklists	
9	Mechanical Commissioning	
	9.01) Final Alignment Certificates	
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	9.03) Mechanical Run Test (MRT) Certificates	
	9.04) Mechanical Commissioning Checklists	
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10	Instrumentation Pre-Commissioning	
	10.01) System Instrument Index	
	10.02) Instrument Data Sheets	
	10.03) Instrument Cable Schedule	
	10.04) System Instrumentation Wiring Diagram	
	10.05) Hook-up Drawing (Mechanical & Pneumatic)	
	10.06) Instruments Cables Schedule	
	10.07) Instruments Cables Laying Certificates	
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	10.09) Instruments Cables Testing Certificates	
	10.10) Instruments Calibration Certificates	
	10.11) Instrument Loop Checks Certificates	
	10.12) Instrumentation Pre-Commissioning Check Lists	
	10.13) Instrumentation Supplier Check Lists & Reports	
11	Instrumentation Commissioning	
	11.01) Instrumentation Function Test Certificates	
	11.02) Instrumentation Supplier Check Lists & Reports	
Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
12	Electrical Pre-Commissioning	
	12.01) System Electrical Index	
	12.02) Electrical Drawings	
	12.03) Motor Datasheets	
	12.04) Electrical Cables Schedule	
	12.05) Electrical Cables Laying Certificates	
	12.06) Electrical Cables Testing Certificates	
	12.07) Electrical Cables Termination Certificates	
	12.08) FAT Reports & Certificates	
	12.09) SAT Reports & Certificates	
	12.10) Electrical Pre-Commissioning Check Lists	
	12.11) Electrical Supplier Check Lists & Reports	

13	Electrical Commissioning	
	13.01) Electrical -Commissioning Check Lists	
	13.02) Electrical Supplier Check Lists & Reports	
14	Red Marked-up Drawings	
	14.01) P&ID	
	14.02) Instrumentation Drawings	
	14.03) Electrical Drawings	



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

1-Mechanical Completion Certificate (MCC)

SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

PROJECT TITLE : CRUDE OIL TANK FARM(AGROOD AREA

PROJECT No : 1251-100

SYSTEM NAME : Tank-03 Cathodic Protection System

SYSTEM ID : 030-CP-004

THIS IS TO CERTIFY THAT:

- THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.
- ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.
- Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.
- ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.
- THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.

EXCEPTIONS :

NOTE: ACCEPTANCE OF THE ABOVE SYSTEM DOES NOT RELIEVE ENPPI/CONSTRUCTION CONTRACTOR FROM THEIR CONTRACTUAL OBLIGATIONS AND RESPONSIBILITIES.

COMPANY	PETROJET	ENPPI	PPC
NAME	Sady Selem		
TITLE	E&I Qc engineer		
SIGNATURE			
DATE			



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

2- Ready for Startup Certificate (RFSU)

READY FOR START UP CERTIFICATE

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-03)

PROJECT No. : 1251-100

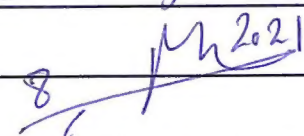
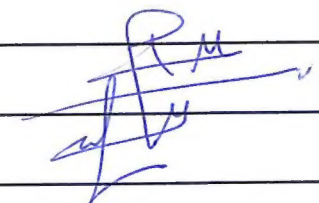
SYSTEM /AREA /PLANT : Tank-03 Cathodic Protection System

SYSTEM /AREA /PLANT No. : 030-CP-004

THIS IS TO CERTIFY THAT:

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

EXCEPTIONS :

COMPANY	CONSORTIUM	PPC
NAME	Mostafa Ibrahim	
TITLE	ELI engineer	
SIGNATURE		
DATE	8/1/2021	



READY FOR START UP CERTIFICATE

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-03)

PROJECT No. : 1251-100

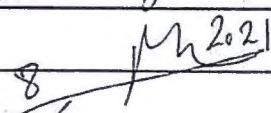
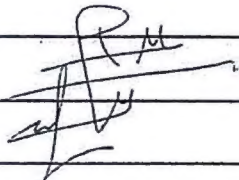
SYSTEM /AREA /PLANT : Tank-03 Cathodic Protection System

SYSTEM /AREA /PLANT No. : 030-CP-004

THIS IS TO CERTIFY THAT:

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

EXCEPTIONS:

COMPANY	CONSORTIUM	PPC
NAME	Mostafa ibrahim	
TITLE	E/I engineer	
SIGNATURE		
DATE	8/1/2021	

System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

3- System Punch Lists



Enppi

PUNCH LIST



PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

PROJECT NUMBER : 01251-100

DISCIPLINE: Cathodic Protection

SYSTEM NAME: Tank-03 Cathodic Protection System

SYSTEM ID: 030-CP-004

SUB-SYSTEM NAME:

SUB-SYSTEM ID:

NO	DESCRIPTION	CAT	ACTION BY	DISP	CLEARANCE APPROVED BY
1-	Cables should be laying.	A	PTJ		
2-	Cables should be Terminated	A	PTJ		
3-	Transformer should be earthed.	B	TTJ		
4-	A.C Power cable must be connected.	A	PTJ		
5-	Test post must be checked	A	PTJ		
6-	Stolen tags must be installed	C	PET		

CAT: CATEGORY(A,B,C), ACTION BY: (ENPPI, CONST. CONTRACTOR, SUPPLIER.....), DISP: DISCIPLINE(PIP, MECH, ELECT, INST.....)

COMPANY	PTJ	ENPPI	PMC
NAME	Mostafa Ibrahim		
SIGN.			
DATE	28/4/2021		



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

4- System Limits Marked Up P&ID



5- System Index



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

6- Piping Pre-Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

6.01- Piping Test Packs



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

6.02- Piping Pre-commissioning Check Lists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

7- Piping Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

7.01- Service Test, GLT, CLT and N2 Purging Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

7.02- Piping Commissioning Check Lists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8- Mechanical pre-Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.01- System Mechanical Index



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.02- Equipment Drawings



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.03- Equipment Datasheets



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.04- Boxing-up Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.05- Grouting Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.06- Pre-Alignment Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

8.07- Mechanical Pre-Commissioning Checklists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

9- Mechanical Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

9.01- Final Alignment Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

9.02- Motor Solo Run Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID

030-CP-004

System Description

Tank-03 Cathodic Protection System

9.03- Mechanical Run Test (MRT) Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

9.04- Mechanical Commissioning Checklists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

9.05- Mechanical Supplier Check Lists & Reports



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10- Instrumentation Pre-Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.01- System Instrument Index



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.02- Instrument Data Sheets



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.03- Instrument Cable Schedule



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.04- System Instrumentation Wiring Diagram



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.05- Hook-up Drawing (Mechanical & Pneumatic)



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.06- Instruments Cables Schedule



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.07- Instruments Cables Laying Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.08- Instruments Cables Termination Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.09- Instruments Cables Testing Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.10- Instruments Calibration Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.11- Instrument Loop Checks Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.12- Instrumentation Pre-Commissioning Check Lists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

10.13- Instrumentation Supplier Check Lists & Reports



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

11- Instrumentation Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

11.01) Instrumentation Function Test Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

11.02- Instrumentation Supplier Check Lists & Reports



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12- Electrical Pre-Commissioning



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.01- System Electrical Index

Tag Number	Tag Description	Form Type	Check Forms ID
030-CP-004	Tank-03 Cathodic Protection System	Cathodic Protection	EPC BY PTJ

EPC BY PTJ

N/A

EPC BY PTJ

EPC BY PTJ

Cathodic Protection

Tank-03 Cathodic Protection System

030-CP-004



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.02- Electrical Drawings

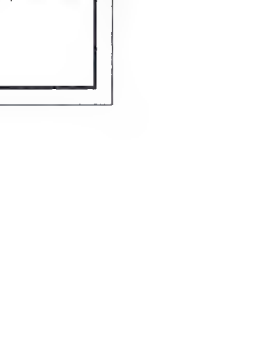
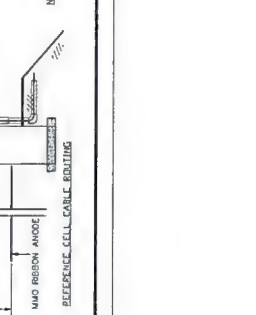
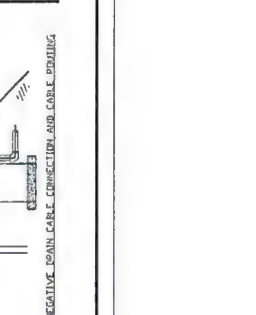
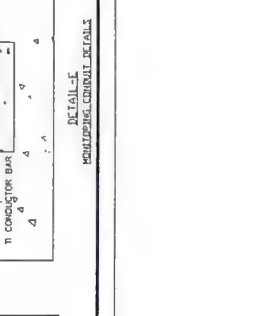
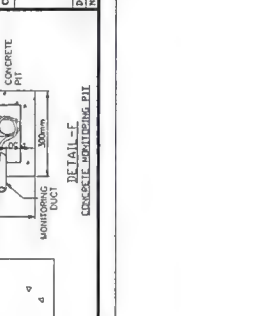
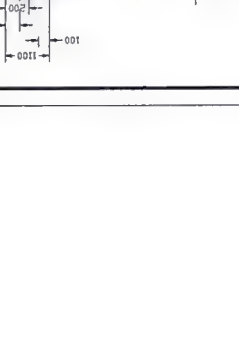
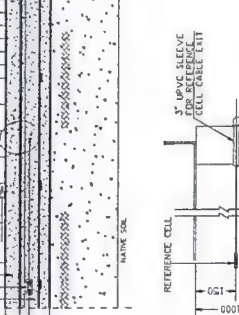
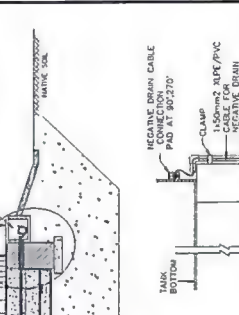
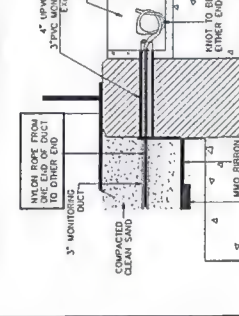
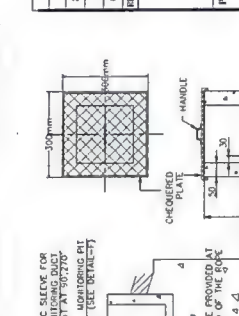
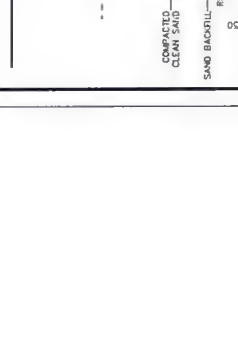
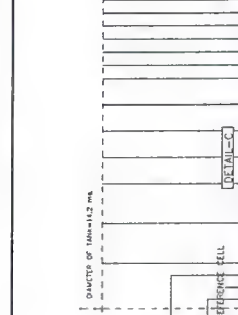
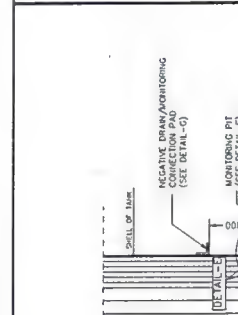
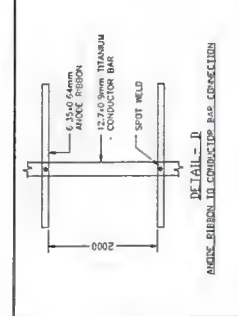
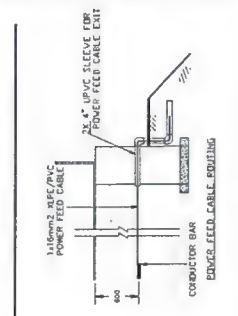
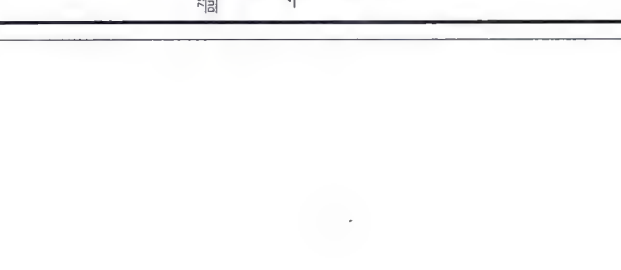
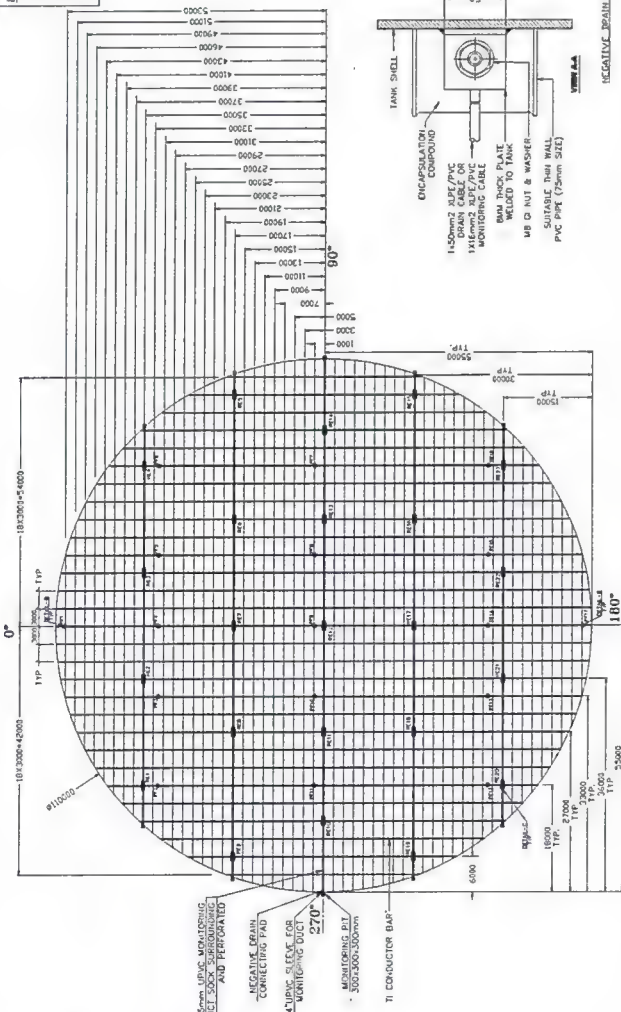
SUPPLIER'S DOCUMENT COVER PAGE (FOR A4/A3 DOCUMENTS ONLY)

SUPPLIER'S NAME :	Petrojet		
PURCHASE ORDER No :	01251-100-116-2-Q		
DOCUMENT TITLE :	External Cathodic Protection system drawing for Crude Oil Storage Tanks		
TOTAL No OF PAGES :	Cover +1		
SUPPLIER'S ORDER No :			
SUPPLIER'S OWN DOCUMENT No	SUPPLIER'S REVISION	DATE	SUPPLIER APPROVAL SIGNATURE
2019/CRUDE OIL-ALL TANKS-30-D-3-CP-01	0	010., 9, 2019	Magdy
	1	18/9/2019	Magdy
	2	30/9/2019	Magdy
SUPPLIER DOCUMENT REVIEW		PROJECT TITLE : EGPC Crude Oil Tank FARM	
<p>PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF DESIGN DETAILS, CALCULATIONS, ANALYSIS, TEST METHODS OR MATERIALS DEVELOPED OR SELECTED BY SUPPLIER FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.</p>		ENPPI PROJECT NUMBER : 01251-100	
		PACKAGE DESCRIPTION : Crude Oil Storage Tank	
<input checked="" type="checkbox"/> 1. WORK MAY PROCEED.		EQUIPMENT TAG : XX-T-01/2/3/4 -All Tank	
<input type="checkbox"/> 2. REVISE AND RESUBMIT IN ACCORDANCE WITH COMMENTS, WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.		CODE IDENTIFIER : D99	
<input type="checkbox"/> 3. REVISE AND RESUBMIT, (MAJOR COMMENTS) WORK MAY NOT PROCEED.		DOCUMENT NUMBER	REV
<input type="checkbox"/> 4. REJECTED, (REASON TO BE SPECIFIED ON THE DOCUMENT).			
<input type="checkbox"/> 5. HOLD FOR A SPECIFIC REASON (TO BE SPECIFIED ON THE DOCUMENT).		1251-100-116-02-XX-D99-022	2
NAME: Ahmed Kamal Abu ElMagd			
SIGNATURE: A. <i>ElMagd</i>		DATE: Oct. 01, 2019	

Code 1

10000-Z-000-PM1-FRM-0033 (11/14)

NOTES:-
To avoid clashes for the tank items below tank (including tank sump / piping) with anodes grid system replica (model) for these items shall be installed prior to installation of the anode ribbons to ensure that the anodes system not clashing with any item.



REV.	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	APPR.
1	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
2	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
3	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
4	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
5	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
6	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
7	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
8	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
9	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI
10	18-09-2019	ISSUED FOR CONSTRUCTION	Remadan	A. SAID	H. ALI	A. BAGUI

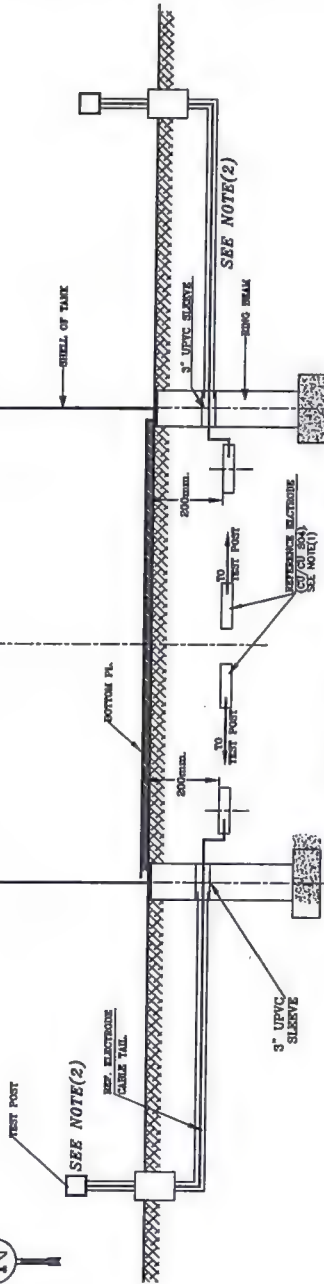
PETROJET
THE PETROLEUM PROJECTS
AND REFINERIES
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P.O. BOX 1000, DUBAI, U.A.E.
TEL: +966 4 369 1111
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WWW.PETROJET.COM.UAE

PROJECT: EPC CRUDE OIL TANK FARM
CLIENT: ENPP / EPC
EXTERNAL CATHODIC PROTECTION SYSTEM DRAWING
FOR CRUDE OIL STORAGE TANKS

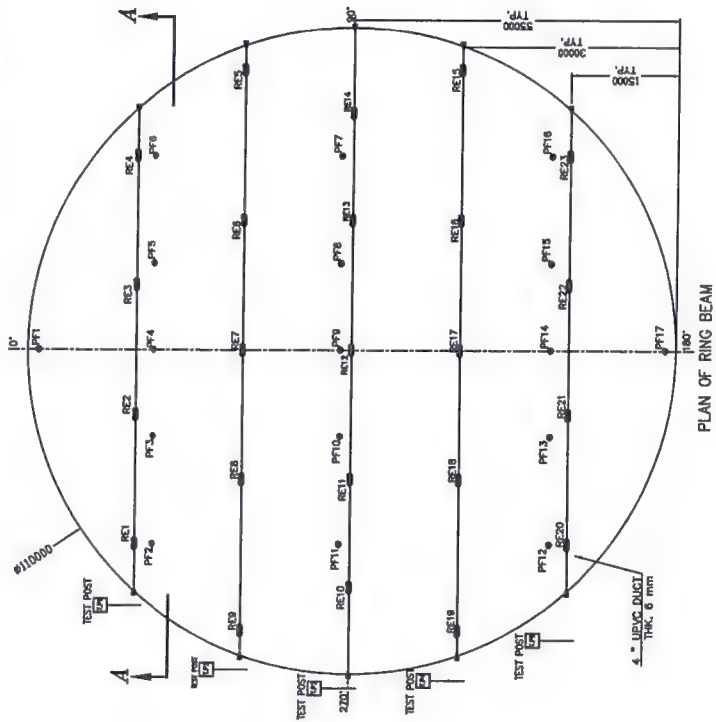
DATE: 18-09-2019
DRAWN: Remadan
CHECK: A. SAID
DESIGN: H. ALI
APPR: A. BAGUI

SCALE: 1/1
SHEET NO. 1/1
REVISION: 2

FIG. NO. 1251-100-116-02-XX-099-072
DWG. NO. 1251-100-116-02-XX-099-072



SECTION ELEVATION A-A.



NOTES:-

- 1) THIS REFERENCE ELECTRODE IS USED ONLY DURING COMMISSIONING TO MEASURE THE POTENTIAL DROP AGAINST THE SECOND ELECTRODE.
- 2) TEST POST WILL BE INSTALLED AT ABOUT 5m.
- 3) ANY CLASHES SHALL BE AVOIDED AT SITE DURING INSTALLATION.

1	18-06-2018	ISSUED FOR CONSTRUCTION	A. SAAD	E. ALY	A. HADJI
2	18-06-2018	REVISED FOR APPROVAL	A. SAAD	E. ALY	A. HADJI
REV.	DATE	DESCRIPTION	DESIGNED	CHECKED	APPROVED
PETROJET PETROJAHILAH PETROJAHILAH PETROJAHILAH PETROJAHILAH PETROJAHILAH PETROJAHILAH					
PROJECT : SUPPLY OF CRUDE OIL TANK TANK CLIENT : SUPPLY / SUPPLY EXTERNAL CATHODIC PROTECTION PERMANENT REFERENCE ELECTRODE INSTALLATION DRAWING FOR CRUDE OIL STORAGE TANKS					
DWG. NO.: 1231-100-116-02-XX-099-023 SHEET NO. 1					

SUPPLIER'S DOCUMENT COVER PAGE (FOR A4/A3 DOCUMENTS ONLY)

SUPPLIER'S NAME :	Petrojet
PURCHASE ORDER No :	01251-100-116-2-Q
DOCUMENT TITLE :	External Cathodic Protection Schematic Layout for Crude Oil Storage Tanks
TOTAL No OF PAGES :	Cover +1
SUPPLIER'S ORDER No :	

SUPPLIER'S OWN DOCUMENT No	SUPPLIER'S REVISION	DATE	SUPPLIER APPROVAL SIGNATURE
2019/CRUDE OIL-All Tank--30-D-3-CP-03	0	010., 9, 2019	Magdy
	1	18/9/2019	Magdy

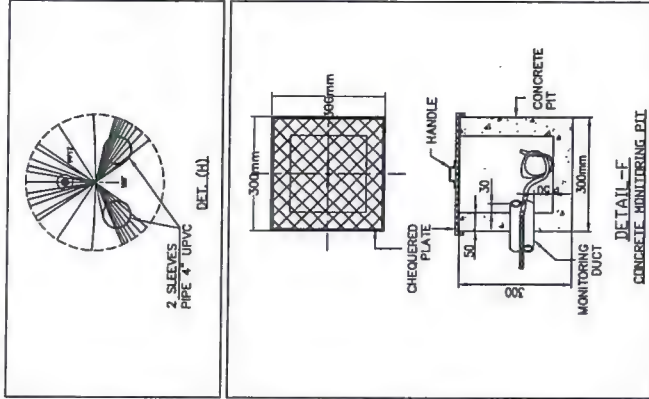
SUPPLIER DOCUMENT REVIEW	PROJECT TITLE : EGPC Crude Oil Tank Farm		
PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF DESIGN DETAILS, CALCULATIONS, ANALYSIS, TEST METHODS OR MATERIALS DEVELOPED OR SELECTED BY SUPPLIER FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.	ENPPI PROJECT NUMBER : 01251-100		
	PACKAGE DESCRIPTION : Crude Oil Storage Tank		
<input checked="" type="checkbox"/> 1. WORK MAY PROCEED.	EQUIPMENT TAG : XX-T-01/2/3/4 -All Tank		
<input type="checkbox"/> 2. REVISE AND RESUBMIT IN ACCORDANCE WITH COMMENTS, WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.	CODE IDENTIFIER : C99		
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<input type="checkbox"/> 4. REJECTED, (REASON TO BE SPECIFIED ON THE DOCUMENT).			
<input type="checkbox"/> 5. HOLD FOR A SPECIFIC REASON (TO BE SPECIFIED ON THE DOCUMENT).	1251-100-116-02-XX-D99-024		0
NAME: Ahmed Kamal Abu ElMagd			
SIGNATURE: A. Ahmed	DATE : Sept. 26, 2019		

Code 1

10000-Z-000-PM1-FRM-0033 (11/14)

NOTE:

- TR UNIT - TRANSFORMER RECTIFIER UNIT
 - AJB - ANODE JUNCTION BOX
 - TP(1 TO 5)- TEST POST
 - PT(1 TO 17)- POWER FEEDS
 - RE(1 TO 23)- REFERENCE ELECTRODE
 - POSITIVE HEADER CABLE.
 - NEGATIVE HEADER CABLE.
 - TR UNIT - TRANSFORMER RECTIFIER UNIT
- ANY CLASHES SHALL BE AVOIDED AT SITE DURING INSTALLATION.



DETAIL-F
CONCRETE MONITORING PIT

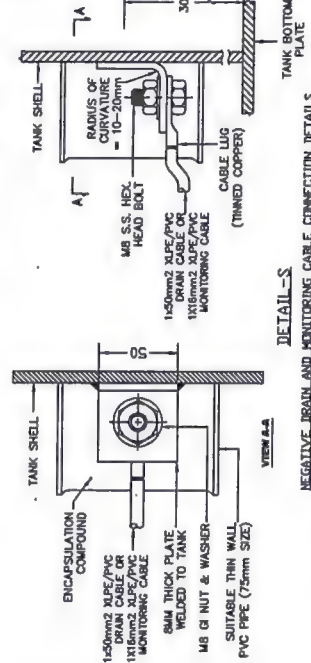
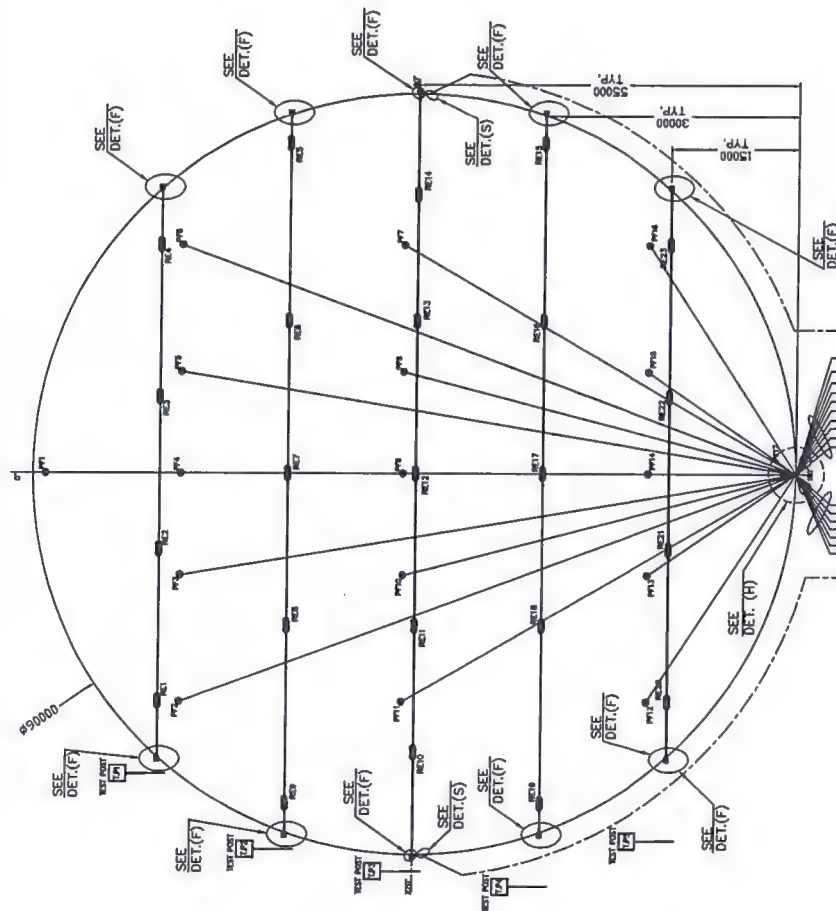
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100	18-08-2018	DESIGNED FOR APPROVAL	A. SAAD	E. ALI	A. SAAD

PETROJET
THE PETROJET PROJECTS
AND TECHNICAL OPERATIONS CO.
P.O. BOX 10000, RAS AL KHAYMA, U.A.E.

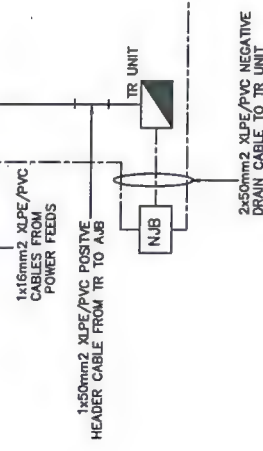
PROJECT: 2018-001 CRUDE OIL TANK FARM
CLIENT: ENPP / ENPC


EXTERNAL CATHODIC PROTECTION SCHEMATIC LAYOUT FOR CRUDE OIL STORAGE TANKS

DATE: 18-08-2018
DRAWN BY: A. SAAD
CHECKED BY: E. ALI
APPROVED BY: A. SAAD
SCALE: 1/1



DETAIL-S
NEGATIVE DRAIN AND MONITORING CABLE CONNECTION DETAILS



	Doc. no.:	CR35913 – II01	Rev. No.:	0
	Doc. Title:	II01 INSTALLATION INSTRUCTIONS FOR CATHODIC PROTECTION	Page:	5 of 15

Please refer to the project drawing "Doc number 1251-100-116-002-D99-005 External Cathodic Protection Permanent Reference Electrode Installation drawing for Fire Water Storage Tanks" for precise location / orientation of these pipes.

The slotted pipe will have a galvanized steel rope passed through entire length of the pipe as it is being assembled and terminated at each end to be used a draw cord The rope is tied wrapped to the Portable Cu/CuSO₄ reference electrode which in turn has a 120m cable tail to allow passage under the entire tank base. When not in use the cable tail / Galvanised steel wire should be safely coiled and stored in the monitoring pits provided.

The PVC is pipe is supplied in 3 to 5.8m lengths and is joined by M/F threaded connection.


The geotextile sleeve is provided loose to be fitted during construction to prevent the backfill media from entering the slotted tube.

For the portable cell to operate successfully it is suggested to wrap in a wet sponge material creating an interference fit within the PVC tube.

Ensure the insulation of the cables is not damaged during the pulling of the cables.



The slotted monitoring pipe should be laid on a sand bank running across the tank base 150mm above the MMO Grid and then routed through the 4" conduit at plant east and west side of the ring beam.

	Doc. no.:	CR35913 – II01	Rev. No.:	0
	Doc. Title:	II01 INSTALLATION INSTRUCTIONS FOR CATHODIC PROTECTION	Page:	7 of 15

5.2 MMO RIBBON & CONDUCTOR BAR

Please refer to:

Document Number 1251-100-116-02-XX-D99-022 External Cathodic Protection System Drawing For Crude Oil Storage Tank

Document Number 1251-100-116-002-D99-004 External Cathodic Protection System Drawing For Fire Water Storage Tank

For the successful operation of the Cathodic Protection system, it is imperative that the MMO Ribbon is installed at a uniform minimum depth of 600mm below the tank bottom.

The foundations of the tanks shall be constructed to the point where they would be at least 350 to 400mm (layer of soft sand) below the bottom of the tank. It must be noted that the MMO Ribbon anodes and conductor bar assembly **MUST** be placed above the membrane.


The membrane should be at 100mm below the proposed location of MMO ribbon grid. In addition, it is essential that the membrane shall cover the entire inner face of the concrete ring beam foundations to isolate the reinforcing rebar from the anode network. The Civil Contractor shall confirm the membrane is a uniform 700 mm depth below the proposed bottom of the tank, before proceeding further.

A 100mm layer of chloride free, clean washed sand shall be installed directly above the membrane, which shall be compacted according to the project standard and the anode shall be installed on this layer. The pattern of the anodes and conductor bar shall be as shown in the referenced drawings.

The anode ribbon shall be placed onto the sand layer in the pattern shown in the relevant design drawing, and then the Titanium conductor bars laid out. Where appropriate, the anodes shall be weighted down to avoid movement however, great care shall be taken to ensure that the coating of the anodes is not scratched or damaged in any way.



Grid style layout of anode ribbon and conductor bars

	Doc. no.:	CR35913 – II01	Rev. No.:	0
	Doc. Title:	II01 INSTALLATION INSTRUCTIONS FOR CATHODIC PROTECTION	Page:	8 of 15

The spot welder, provided shall be used for all welds and shall be operated in accordance with the manufacturer's Operation Manual by an experienced operative – see appendix 2 for operation instructions.

A sample test weld between the anode ribbon and conductor bar should first be carried out in order to ensure good quality welds. A pull test (by hand) to ensure the weld cannot be pulled apart. A resistance test between the welded element shall be carried to ensure the weld integrity. The acceptance criteria for the resistance between the welded elements shall be 0.1ohm using a calibrated multimeter.



MMO Ribbon anode spot welded to titanium conductor

The sample spot weld shall be inspected by a Cathodic Protection Engineer or other responsible authorised person.

Each weld carried shall be tested with a pull test (by hand) and have a resistance test carried out. The results shall be recorded. The settings on the spot welder unit should be also recorded.

The recommended setting is as follows:


- MMO ribbon anode to MMO ribbon anode: 2 seconds.
- MMO ribbon anode to Titanium conductor bar: 3 seconds
- Titanium conductor bar to Titanium conductor bar: 5 seconds

At each and every crossover of the anode ribbon with the conductor bar, the anode shall be resistance welded, (spot welded) to the conductor bar a minimum of twice. Where necessary, anodes and conductor bars shall be extended using the same procedure.

5.3 POWERFEED CONNECTORS

The power feed connection locations shall be identified as per the reference drawings.

Power feed connectors are factory connected to the 16mm² cable using a splice kit. The Conductor bar tail from the power feed cable encapsulation shall be connected to the conductor

	Doc. no.:	CR35913 – II01	Rev. No.:	0
	Doc. Title:	II01 INSTALLATION INSTRUCTIONS FOR CATHODIC PROTECTION	Page:	9 of 15

bar on the anode grid using where appropriate resistance welding (spot welding) in a least 5 location posts (refer Detail A of reference drawing).



Power Feed connector spot welded to titanium conductor


Upon completion of the power feed assemblies to the grid, the power feed cables shall be routed to the chosen exit point from the foundations, and routed out of the foundations via the 4" dedicated pipe cast into the concrete ring beam, as shown in the design drawings.

A 25mm 'sand bridge' shall be made at each power feed cable / anode crossing location to ensure that they are not in direct contact. Collect all anode power feed cables together and ensure that they are tagged at each end with their respective number, then ensure all cable have been routed out of the foundations via the exit pipe without damaging the cable tag.



Sand bridge used to ensure separation between Power Feed Cables and Anode / Conductor Bar –
NOTE actual power feed cables supplied are Red colour!

The entire anode, conductor bar and cable assembly shall be covered with another layer of chloride free, clean washed sand, which shall be smoothed flat and compacted. The Civil Contractor shall confirm the sand layer is uniform and at least 50mm above the MMO Ribbon layer.

	Doc. no.:	CR35913 – II01	Rev. No.:	0
	Doc. Title:	II01 INSTALLATION INSTRUCTIONS FOR CATHODIC PROTECTION	Page:	10 of 15

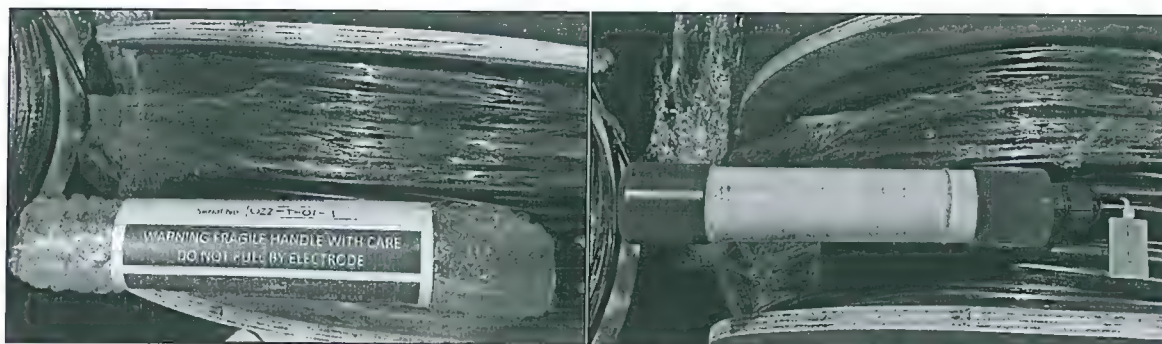
The power feed cables shall be routed from the tank to the location of the Anode Junction Box (AJB) installed adjacent to the tank. At all times the cables shall be laid in a single length without further splicing, free from kinks and excessive bends.

Please refer to paragraph "5.10 installation procedure for cables laying"

5.4 PERMANENT REFERENCE ELECTRODE

Please refer to the relevant drawings to ensure the correct positioning of the reference electrodes.

Please ensure not to pull the cable from the reel by handling the reference electrode.



Permanent Reference Electrodes showing protection packaging and film wrapping

Please ensure to fully remove any projective packaging and film wrapping from around the reference electrode.

A 100mm layer of chloride free, clean washed sand shall be installed directly above the titanium conductor bar and the Mixed Metal Oxide Ribbons prior to placing the Permanent Cu/CuSO₄ reference electrode c/w cable tail.

Collect all cables and ensure that they are tagged at the tail end with their respective number, then all cables shall be routed out the foundation via the exit pipe.

The Permanent Cu/CuSO₄ cables shall be routed from the tank to the location of the Test Post Junction Box installed adjacent to the tank. At all times the cables shall be laid in a single length without further splicing, free from kinks and excessive bends.

Please refer to paragraph "5.10 installation procedure for cables laying"

5.5 POTENTIAL MONITORING FACILITIES (PVC TUBE)

When at least a 150mm layer of sand over the MMO ribbon has been completed, slotted monitoring pipe shall be installed as shown in the relevant design drawing, ensuring that the pipe is straight and flat to allow a portable reference electrode to pass without hindrance.

Clarke[®] weld



SPOT WELDER

Models CSW6T & CSW13T

Part Nos. 6030005 & 6030010

9/2014

OPERATING & MAINTENANCE INSTRUCTIONS



FEATURES

Model CSW6T

This 230V 50Hz, portable Spot Welder is provided with an electronic timer which allows precise control of welding time. The control knob is arrowed in Fig. 1.

Electrode pressure may be mechanically adjusted from 40 to 120kg, to spot weld low carbon sheet steel up to 1 + 1 mm in thickness.

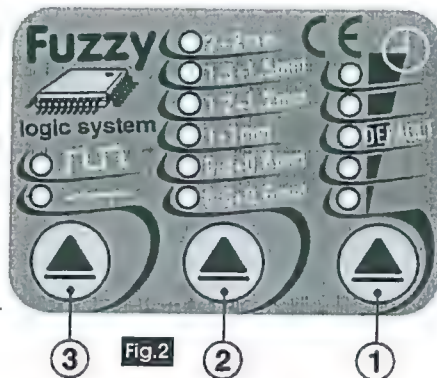


Model CSW13T

The most important features of this 230V 50Hz Portable Spot Welder are controlled by a microprocessor, managed from the control panel, shown in Fig. 2. These features are:

1. Welding time, set according to the thickness of metal to be welded.
2. Changing selection for Welding thickness
3. Changing resistance welding machine operating mode... normal or pulse.

Selecting 'PULSE' mode improves welding capacity on material with high yield points or materials with protective coatings. The pulsation period is preset and does not require adjustment.



4. Electrode pressure may be mechanically adjusted from 40 to 120kg, to spot weld low carbon sheet steel up to 2 + 2 mm in thickness.

Both Models

- 120mm Electrode Arms and standard electrodes are provided.
- An eye bolt may be fitted to the machine (see your Clarke dealer), for use in supporting the machines weight when repetitive welds are required (see your Clarke dealer). **IMPORTANT! When using the Eye Bolt, Take care NOT to screw it more than 8mm into the screw hole.**

UNPACKING & PARTS IDENTIFICATION

Unpack and lay out the components, checking against the following list. Please report any damage which may have occurred during transit, to your CLARKE dealer immediately.

- | | |
|----------------------------------|--------------------------|
| 1. Welder complete. | 5. 2 x Hex. Wrenches - D |
| 2. 1 x Handle - A | 6. 1 x M6 Screw - F |
| 3. 2 x Electrode Holders - B | |
| 4. 2 x Electrodes (straight) - C | |

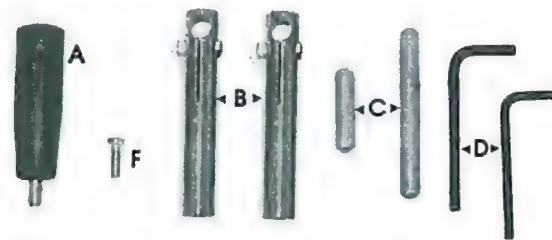


Fig.3

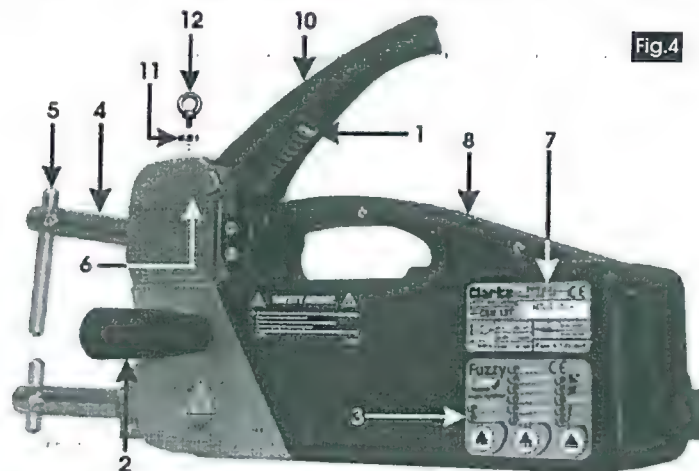


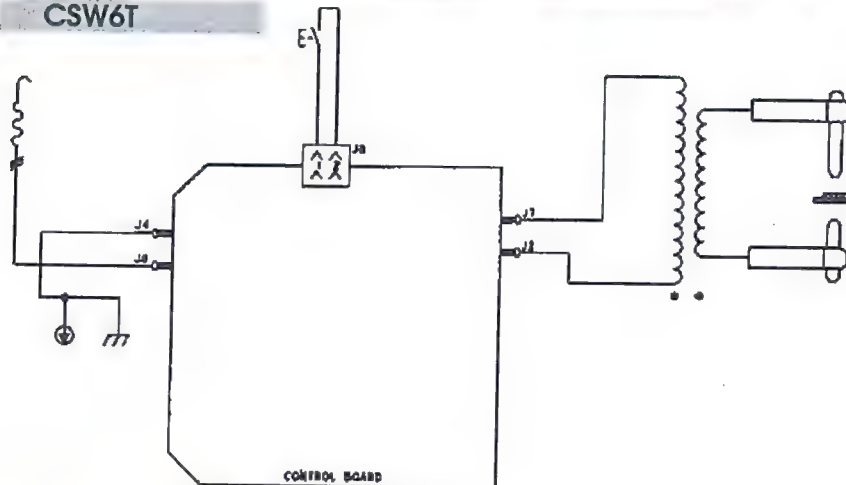
Fig.4

- | | |
|----------------------------|----------------------------|
| 1. Pressure Adjuster screw | 7. Data Label |
| 2. Handle | 8. Microswitch |
| 3. Control panel (13T) | 9. Weld Time Adjuster (6T) |
| 4. Electrode Arm | 10. Operating Lever |
| 5. Electrode (Long) | 11. Spacer (Optional) |
| 6. Screw Locating Hole | 12. Lifting Eye (optional) |

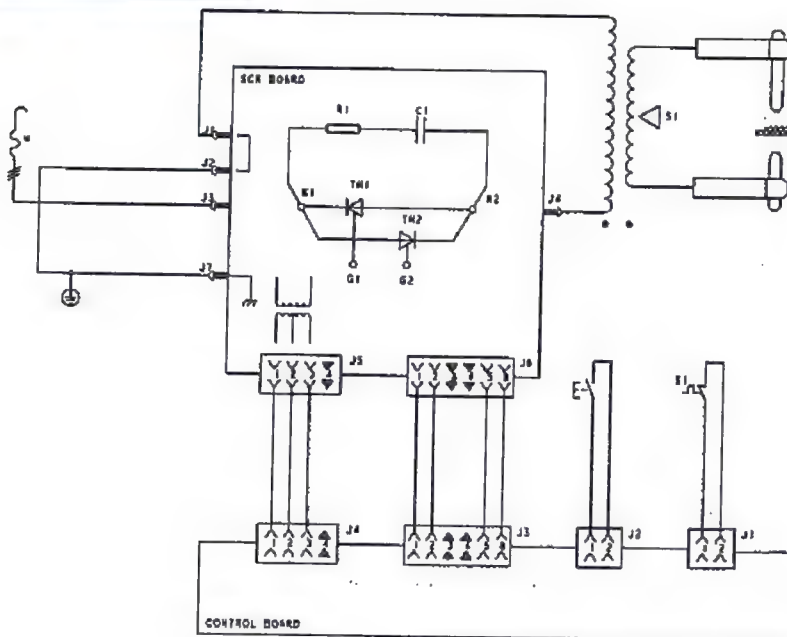


SCHEMATIC WIRING DIAGRAMS

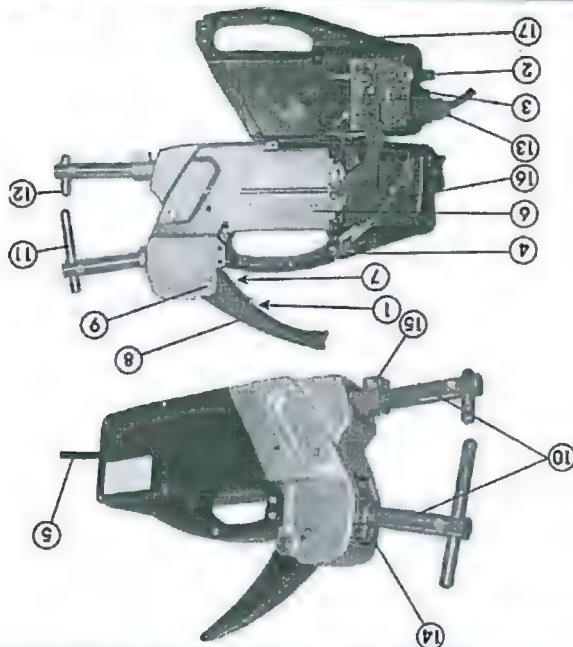
CSW6T



CSW13T

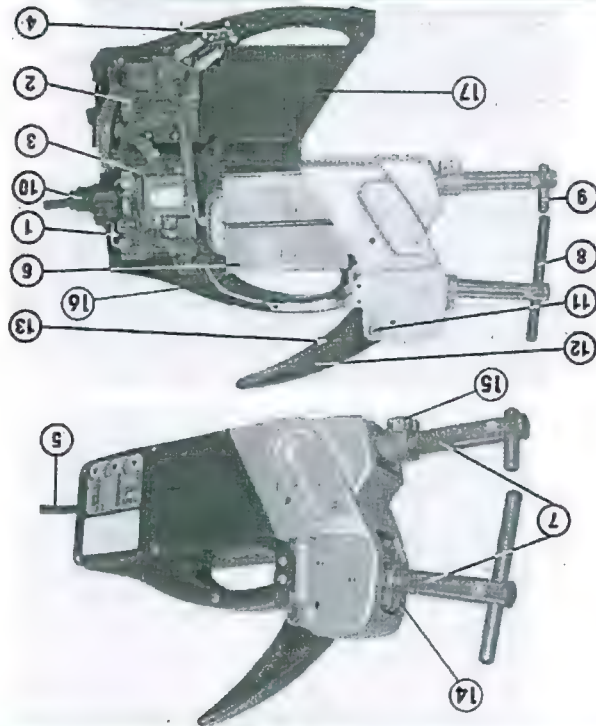


SPARE PARTS - CSW61




No.	Description	No.	Part Number
1	Bush	1	TT322518
2	Potentiometer (Adjuster) Knob	1	TT112299
3	Timer PCB	1	TT114236
4	Microswitch	1	TT122393
5	Mains Cable	1	TT132104
6	Transformer	1	TT169152
7	Adjuster Screw	1	TT121263
8	Operating Lever	1	TT322512
9	Pivot Pin	1	TT482887
10	See Page 13 for full range of Arms		
11	See Page 13 for full range of Electrodes		
12	See Page 13 for full range of Electrodes		
13	Cable Kit - Bushing, Ring Nut	1	TT990046
14	Upper Arm Clamp	1	TT522020
15	Lower Arm Clamp	1	TT522023
16	Left Shell	1	TT322509
17	Right Shell	1	TT322526

No.	Description	No.	Part Number
1	Screw	1	TT113908
2	Control PCB	1	TT114070
3	Power PCB	1	TT114085
4	Microswitch	1	TT122393
5	Mains Cable	1	TT132104
6	Transformer	1	TT169034
10	Cable Kit - Bushing, Ring Nut	1	TT990046
11	Pivot Pin	1	TT482887
12	Operating Lever	1	TT322512
13	Adjuster Screw	1	TT212163
14	Upper Arm Clamp	1	TT522020
15	Lower Arm Clamp	1	TT522023
16	Right Shell	1	TT322510
17	Left Shell	1	TT322511



SPARE PARTS - CSW131



PROJECTION	FOR APPROVAL
	
FOR CUSTOMER USE ONLY	

APPROVED: ☐ NAME: _____ DATE: _____
SIGNED: _____

BAC
CORROSION CONTROL
www.baccontrol.com

PROJECT: CR36913

TITLE: GENERAL ARRANGEMENT DRAWING

VARIAC CONTROL, TRANSFORMER RECTIFIER

AC SUPPLY 400V 3PH 50HZ

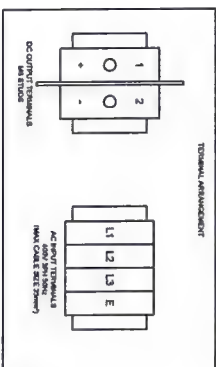
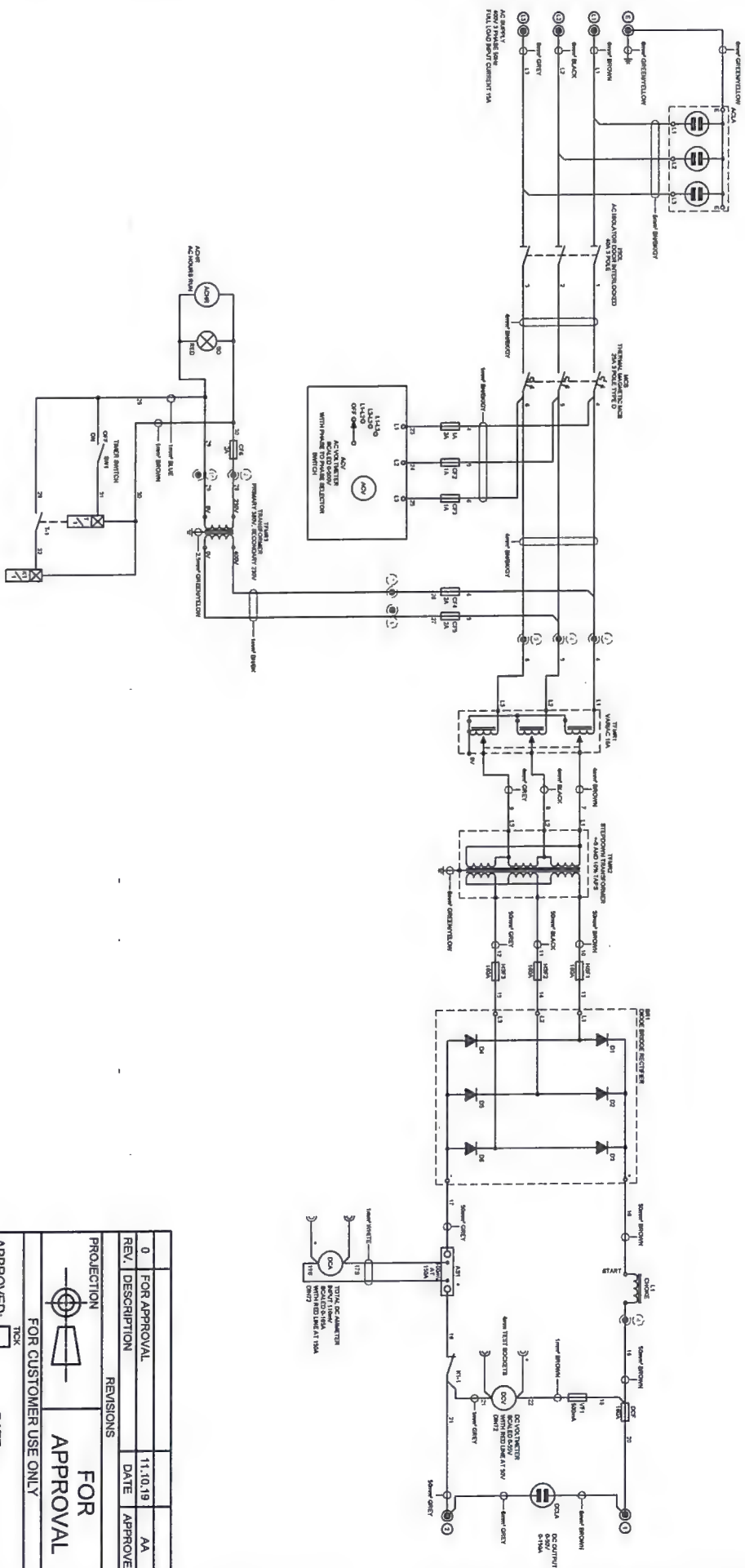
DC OUTPUT 50V 150A

PM

APPROX WEIGHT (KG):	0
QUANTITY:	29

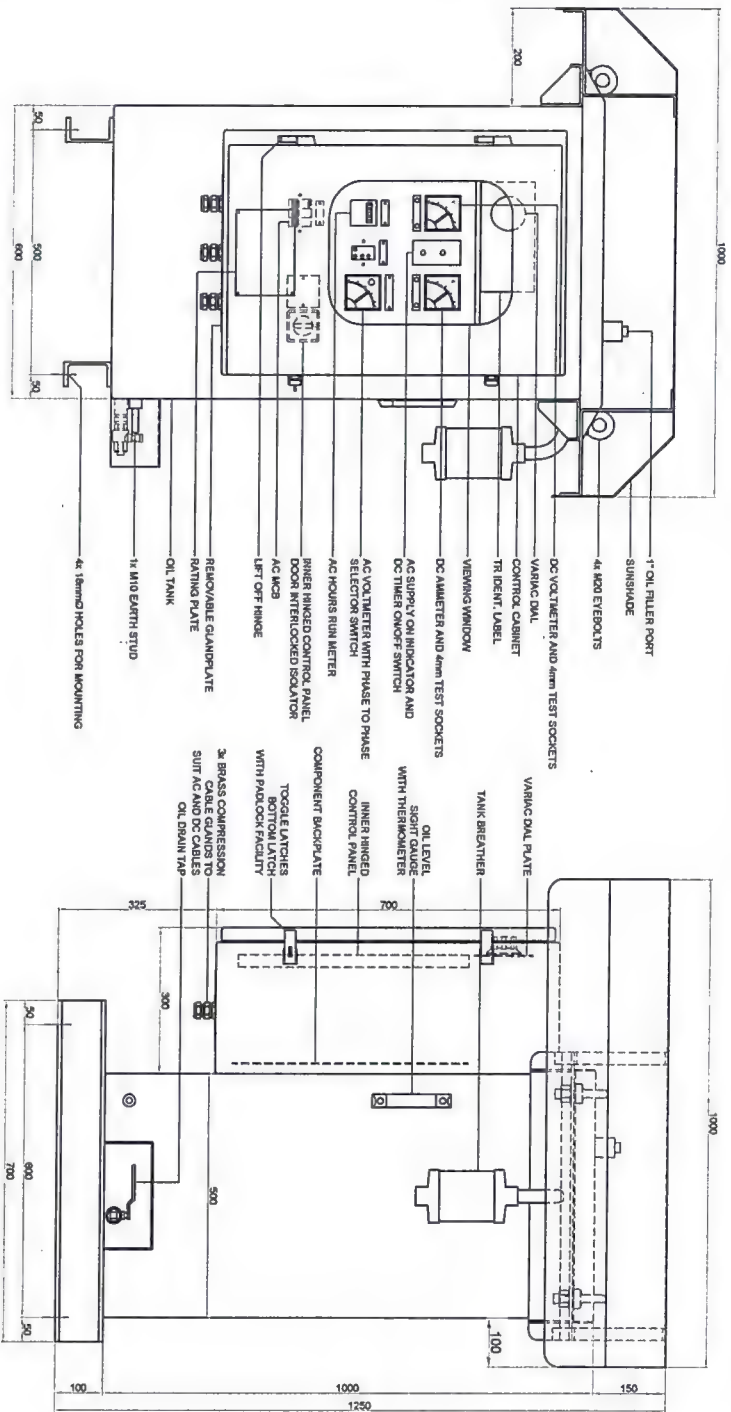
X	NAME	DATE	FINISH:	
	DRAWIN	JAC	11.10.19	

DWG NO.	CR35913-001	SHEET 1 OF 1	SCALE: 1:2	A3
REVISION:	-R0			



NOTE: THE BAC SYSTEM IS A 200V SYSTEM. THE AC INPUT TERMINALS ARE 200V. THE DC OUTPUT TERMINALS ARE 50V. THE BAC SYSTEM IS A 200V SYSTEM. THE AC INPUT TERMINALS ARE 200V. THE DC OUTPUT TERMINALS ARE 50V.

0 FOR APPROVAL		11.10.19		AA	
REV.	DESCRIPTION	DATE	APPROVED		
<div style="display: flex; justify-content: space-between;"> <div> <p>PROJECTION</p> </div> <div> <p>FOR CUSTOMER USE ONLY</p> <p>APPROVED: <input type="checkbox"/> TCK</p> <p>NAME: _____</p> <p>SIGNED: _____</p> <p>DATE: _____</p> </div> </div>					
<div style="display: flex; justify-content: space-between;"> <div> <p>FOR APPROVAL</p> <p>DATE</p> </div> <div> <p>APPROVED</p> <p>DATE</p> </div> </div>					
<p>THE DRAWING/DOCUMENT IS THE PROPERTY OF BAC CORROSION CONTROL, AND MUST NOT BE COPIED, USED FOR MANUFACTURE OR OTHERWISE DISCLOSED WITHOUT PRIOR WRITTEN CONSENT</p>					
<p>PROJECT: CR35913</p> <p>TITLE: CONSTANT CURRENT CORROSION CONTROL</p> <p>AC SUPPLY: 200V 50Hz</p> <p>DC OUTPUT: 50V 100A</p>					
<p>APPROX. WEIGHT (KG): -</p> <p>QUANTITY: 29</p>					
<p>MATERIAL: -</p>					
<p>NAME: _____</p> <p>DATE: _____</p>					
<p>DRAWN: JAC</p> <p>11.10.19</p> <p>SHEET 1 OF 1</p> <p>SCALE: A3</p>					
<p>DWG NO: CR35913-002</p> <p>REVISION: -R0</p>					



MANUFACTURED FROM
TANK 3mm MILD STEEL SHEET
CABINETS AND SUNSHADE 2.0mm MILD STEEL SHEET
INGRESS PROTECTION IP55

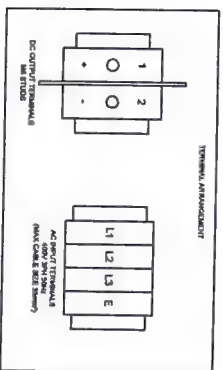
FINISH: SUITABLE FOR HARSH MARINE ENVIRONMENT (C4-M)
EXTERNAL SURFACES INCLUDING
SHOTBLAST SA2.5
HOT DIP SPRAY 100 MICRONS
INTERNAL SURFACES INCLUDING
HOT DIP SPRAY 100 MICRONS
POLYESTER POWDER 70 MICRONS

INTERNAL SURFACES
SHOTBLAST SA2.5
HOT DIP SPRAY 100 MICRONS
POLYESTER POWDER 70 MICRONS
COLOUR ALL SURFACES: DARK GREY

REV	0	FOR APPROVAL	11.10.19	AA
REV	DESCRIPTION	DATE	APPROVED	

		FOR APPROVAL	
APPROVED: <input type="checkbox"/> TICK DATE: _____			
NAME: _____ SIGNED: _____			

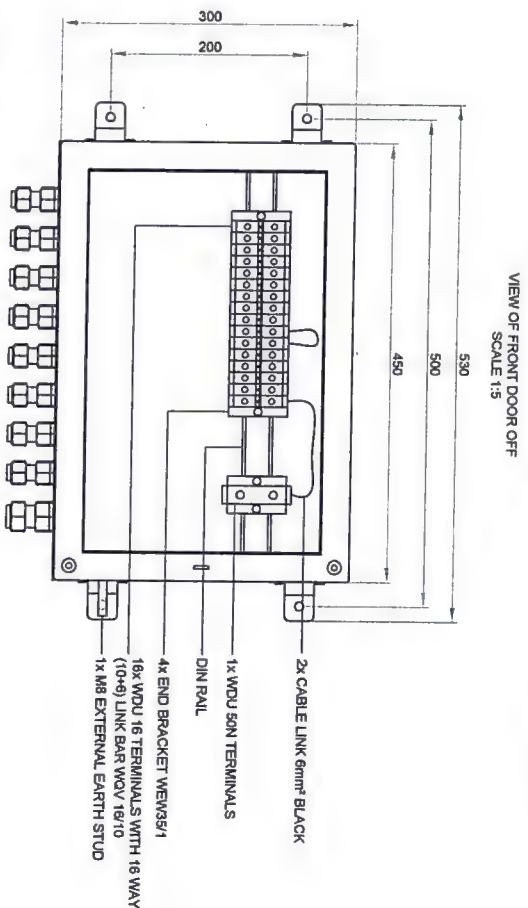
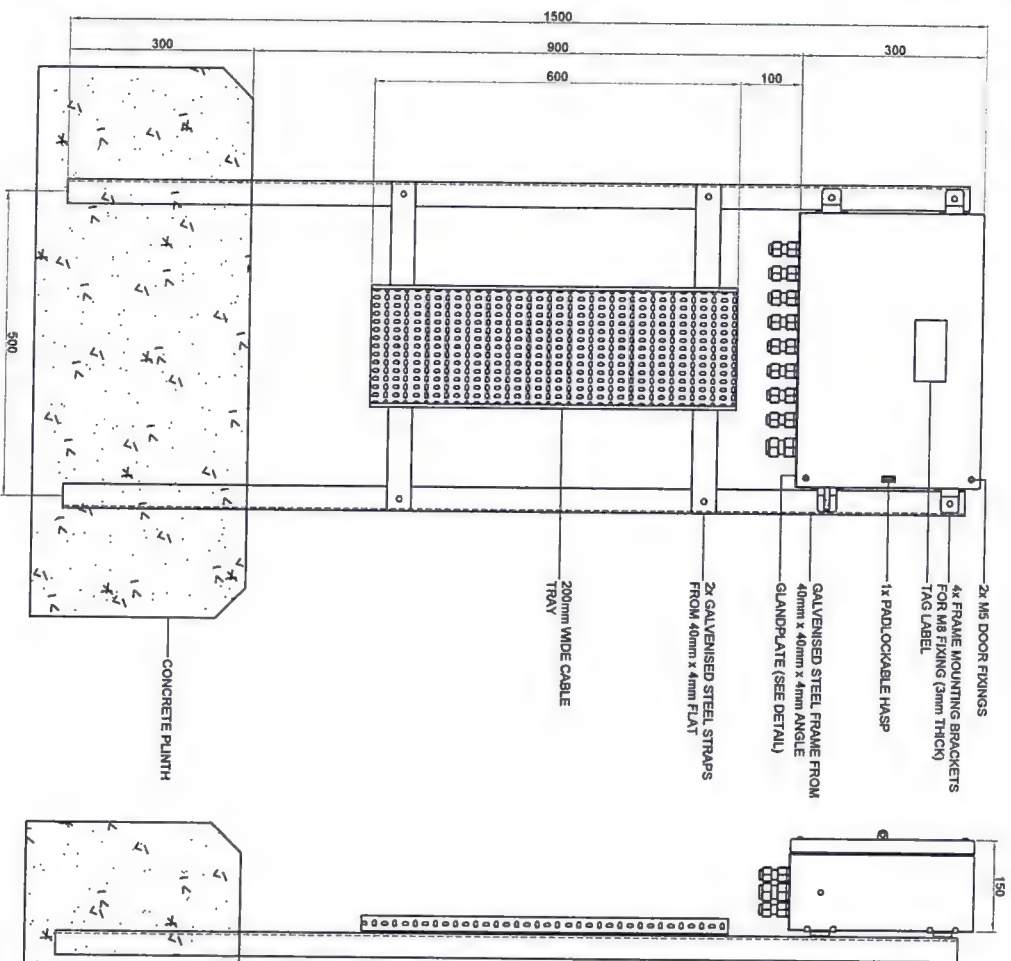
BAC CORROSION CONTROL www.bacgroup.com		THIS DRAWING IS THE PROPERTY OF BAC CORROSION CONTROL AND MUST NOT BE COPIED, USED FOR REPRODUCTION OR OTHERWISE DISCLOSED WITHOUT PRIOR WRITTEN CONSENT	
PROJECT: CR35913			
TITLE: GENERAL ARRANGEMENT DRAWING AC SUPPLY 400V 3PH 50HZ DC OUTPUT 50V 50A			
MATERIAL: _____		QUANTITY: 7	
NAME: JAC	DATE: 11.10.19	FINISH: _____	SCALE: 1:10
SHEET 1 OF 1	A3	REVISION: -R0	



MAIL TO: 84121-2984-1, 915 ROSSIGNOL BLVD. FOR ELECTRICAL INSTALLATION, 1177 WINDING RIVERBLVD. NOME, ORION FROM GALESETT DO YOU TALK IN CONTOON, CIRCUITS LEADS THAT BY WERE WE USE WHITE CABLE.

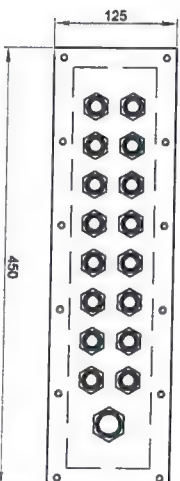
LAST WHITE INCL: 22

[illegible]



- NOTES:
- CABINET MANUFACTURED FROM 1.5mm 316L STAINLESS STEEL.
 - CABINET IP65
 - CABINET DOOR WITH HINGE ON LEFT HAND SIDE
 - CABINET FINISH NATURAL BRUSHED

GLANDPLATE DETAIL
SCALE 1:5



NICKEL PLATED BRASS CABLE GLANDS TO SUIT:
1x M20 50mm² UNARMORED CABLE
16x M20S16 16mm² UNARMORED CABLE

PROJECT No. CR35013		PART No. 014020123	
DRAWN	NAME	DATE	DWG SCALE
JAC		20/01/20	1:5
DWG No.		SHEET 1 of 1	
CR35913-005		REVISION:	
		R0	

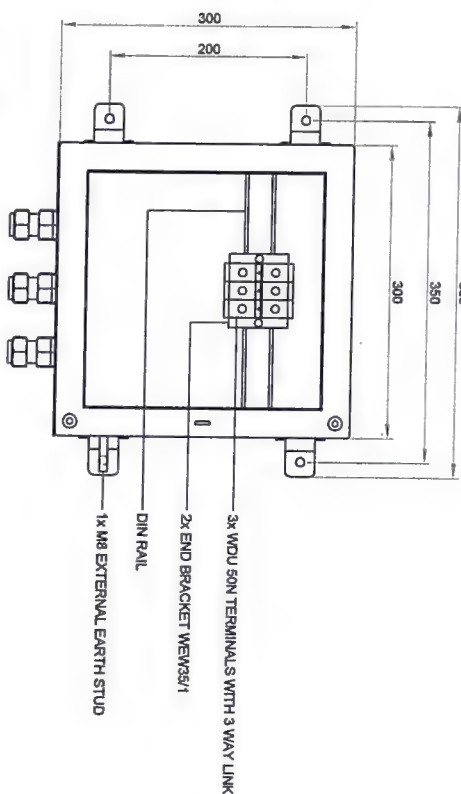
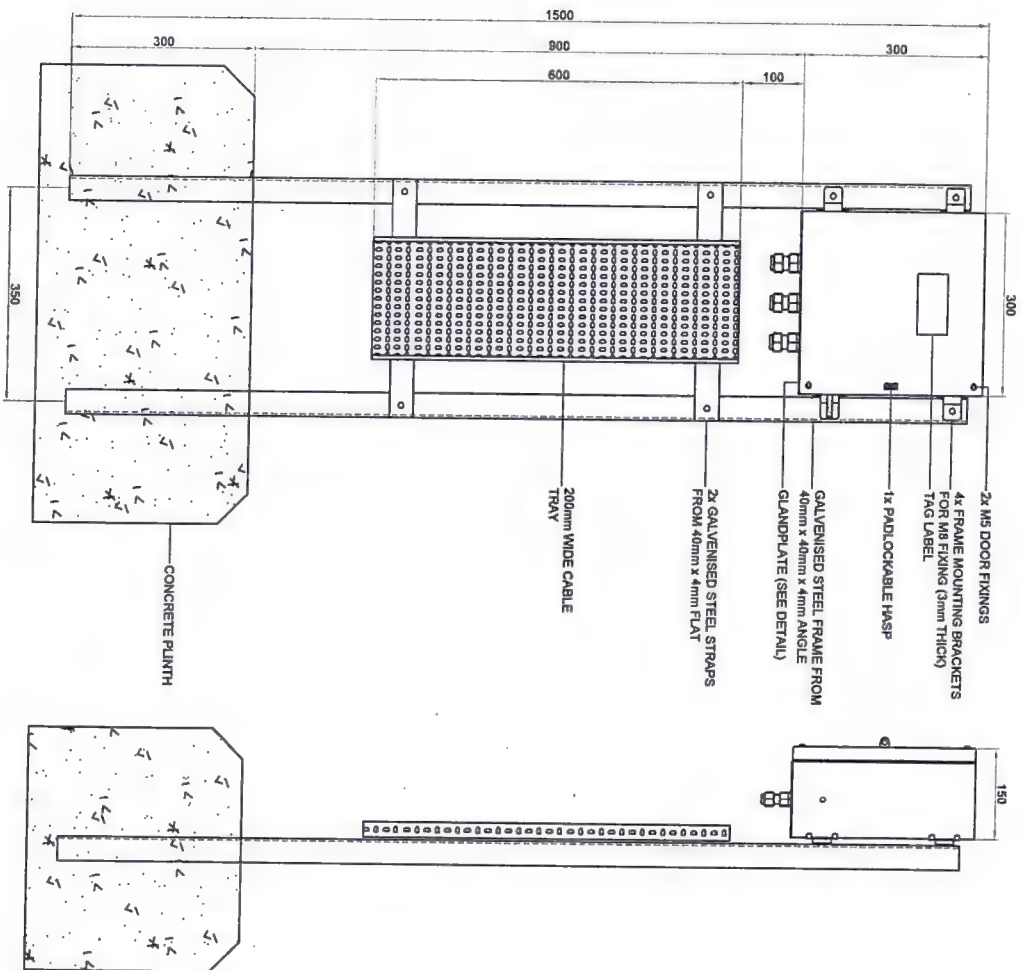
APPROVED: <input type="checkbox"/> TCK		DATE
NAME		
SIGNED		

FOR CUSTOMER USE ONLY	
REV.	DESCRIPTION
0	ISSUED FOR PRODUCTION
DATE	APPROVED
20/01/20	JAC

REVISIONS	
DATE	APPROVED

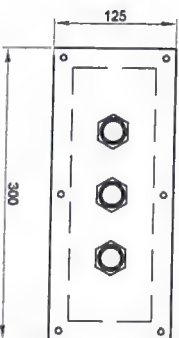
THIRD ANGLE PROJECTION	

CORROSION CONTROL	
THIS DRAWING DOCUMENT IS THE PROPERTY OF BAC. CORROSION CONTROL AND MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM BAC.	
ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED	



- NOTES:
- CABINET MANUFACTURED FROM 1.5mm
 - 316L STAINLESS STEEL
 - CABINET IP65
 - CABINET DOOR WITH HINGE ON LEFT HAND SIDE
 - CABINET FINISH NATURAL BRUSHED

GLANDPLATE DETAIL
SCALE 1:5

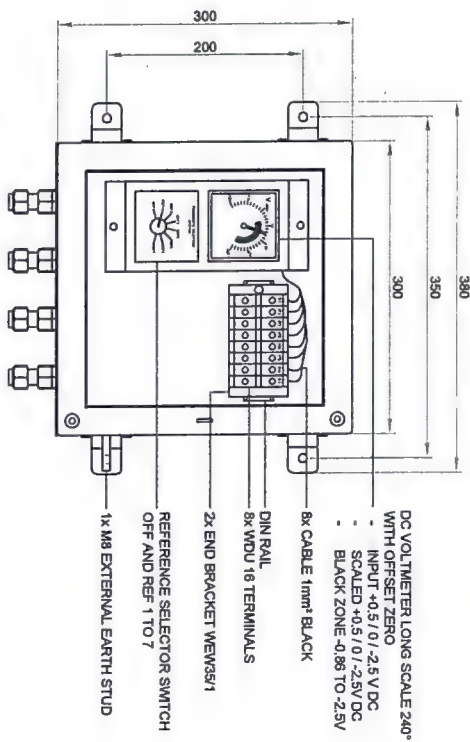
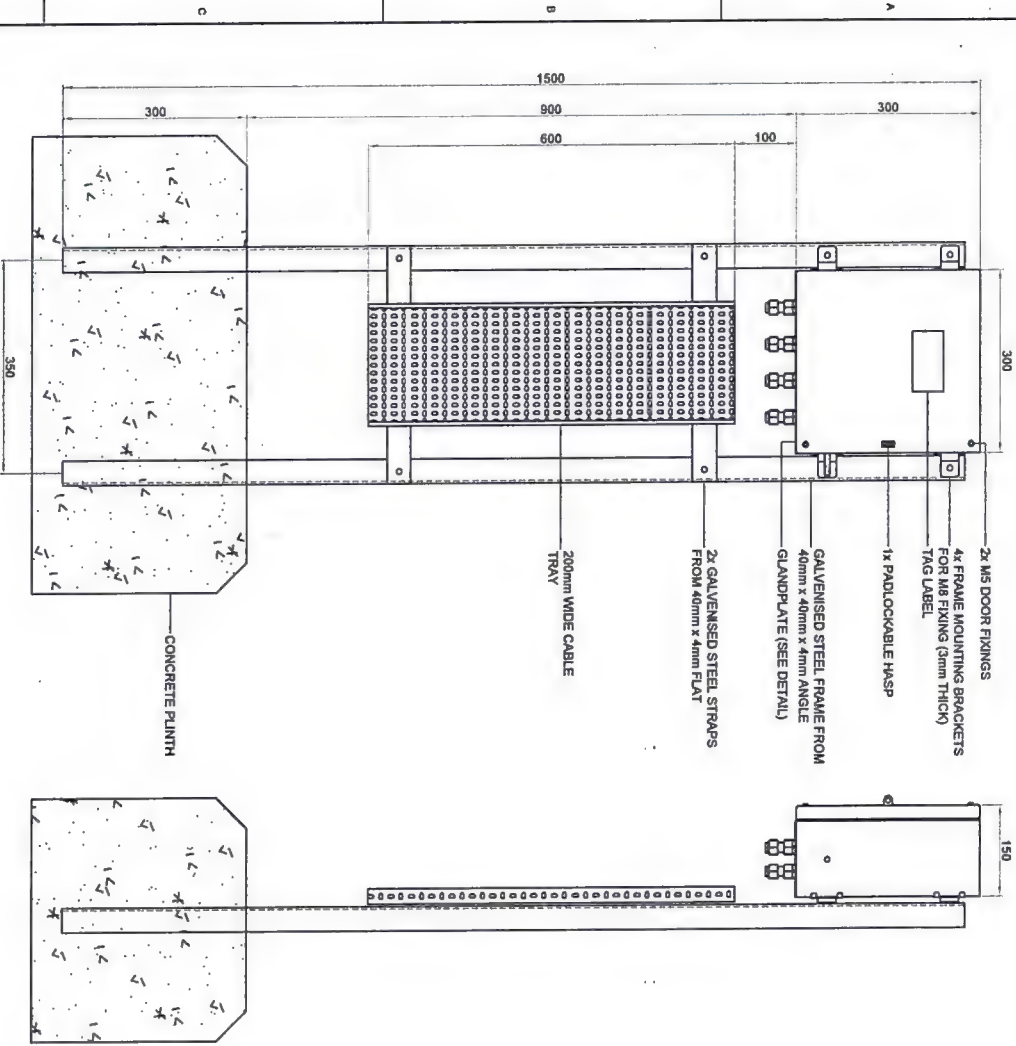


NICKEL PLATED BRASS CABLE GLANDS TO SUIT:
3x M20 30mm UNARMED CABLE

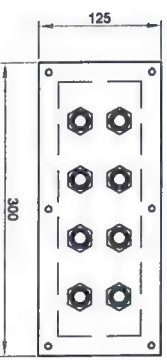
PROJECT No. CR35913				PART No. 014001025			
DRAWN		DATE		DWG SCALE: 1:5		DWG SIZE: A3	
JAC		2001/20		SHEET: 1 of 1		REVISION: R0	
<p>CR35913-007</p>							

APPROVED: <input type="checkbox"/> TCK		DATE: _____	
NAME: _____		SIGNED: _____	
FOR CUSTOMER USE ONLY			
REV. 0		ISSUED FOR PRODUCTION	
REV. 1		2001/20	
DATE		APPROVED	

<p>BAC</p> <p>CORROSION CONTROL</p> <p>THIS DRAWING IS THE PROPERTY OF BAC CORROSION CONTROL AND MUST NOT BE COPIED, USED FOR MANUFACTURE OR OTHERWISE DISCLOSED WITHOUT PRIOR WRITTEN CONSENT. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.</p>		<p>THIRD ANGLE PROJECTION</p>	
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- NOTES:
- CABINET MANUFACTURED FROM 1.5mm 316L STAINLESS STEEL
 - CABINET IP65
 - CABINET DOOR WITH HINGE ON LEFT HAND SIDE
 - CABINET FINISH NATURAL BRUSHED



NICKEL PLATED BRASS CABLE GLANDS TO SUIT:
8x M20S16 10mm² UNARMORED CABLE

PROJECT No. CR35913		PART No. 014001025	
DRAWN	NAME	DATE	DWG SCALE: 1:5
JAC		20/07/20	SHEET: 1 of 1
DWG No.	CR35913-008		REVISION
			R0

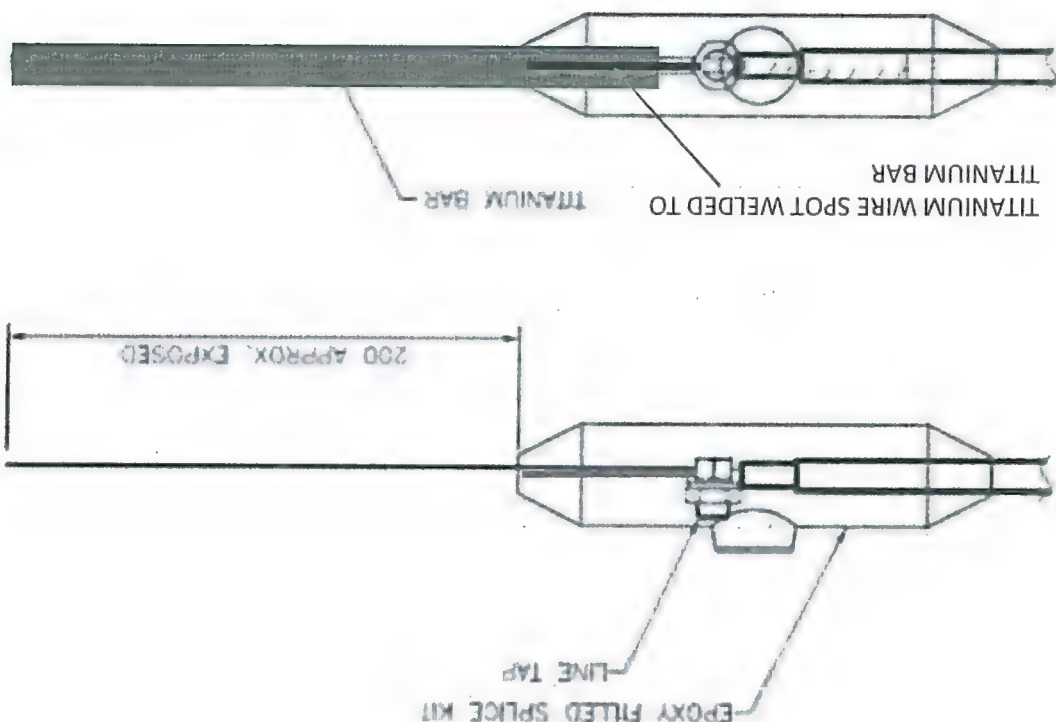
BAC CORROSION CONTROL GENERAL ARRANGEMENT DRAWING TEST POST 7 WAY		THIS DRAWING/DOCUMENT IS THE PROPERTY OF BAC CORROSION CONTROL AND MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PRIOR WRITTEN CONSENT. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED
FOR CUSTOMER USE ONLY APPROVED: <input type="checkbox"/> TICK <input type="checkbox"/> DATE: _____ NAME: _____ SIGNED: _____		THIRD ANGLE PROJECTION
REV.	DESCRIPTION	DATE
D	ISSUED FOR PRODUCTION	30/07/20
REV.	DESCRIPTION	DATE
	APPROVED	

MIXED METAL OXIDE

ANODES RIBBON TYPE POWER FEED CONNECTION KIT

APPLICATION : For power feed connections on under tank grid anode system. The power feed connector connects the DC current feeder cable to the Titanium Conductor Bar.

Anode Power Feed Connector comprises 12.7mm width x 0.9mm Thickness x 200mm length Titanium Conductor Bar spot welded to a 100mm length of 3mm dia Titanium Wire. Encapsulation to the DC feeder cable is made by an epoxy splice kit and line tap connector generally as detailed below



Quantity : 551 No (for Crude Oil Tanks)
Powerfeed Connectors supplied with 500m of 16mm² XLPE/PVC Cable
Tail , Colour Red

Quantity : 77 No (for Fire Water Tanks)
Powerfeed Connectors supplied with 160m of 16mm² XLPE/PVC Cable
Tail , Colour Red



POWER FEED
CONNECTOR

1.11

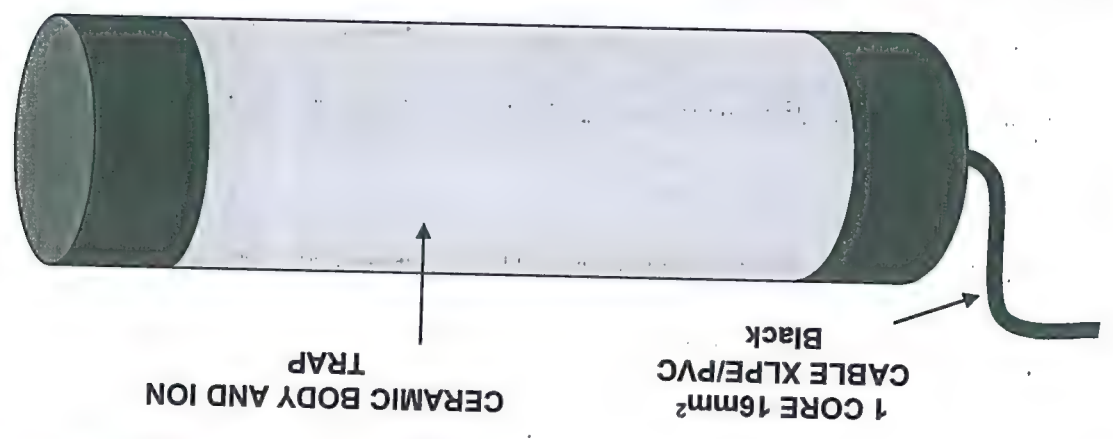
DATASHEET

PERMANENT COPPER / COPPER SULPHATE REFERENCE ELECTRODE

This permanent reference electrode is used to measure Cathodic Protection (CP) potentials on buried pipelines, storage tanks and other buried metallic structures to which CP has been applied. Can be used with a pipeline coupon that allows you to take an IR free potential reading without interruption of the CP system.




DATASHEET
CU/CUSO4 REFERENCE ELECTRODE



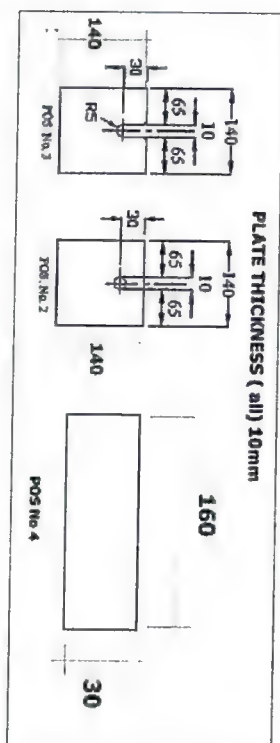
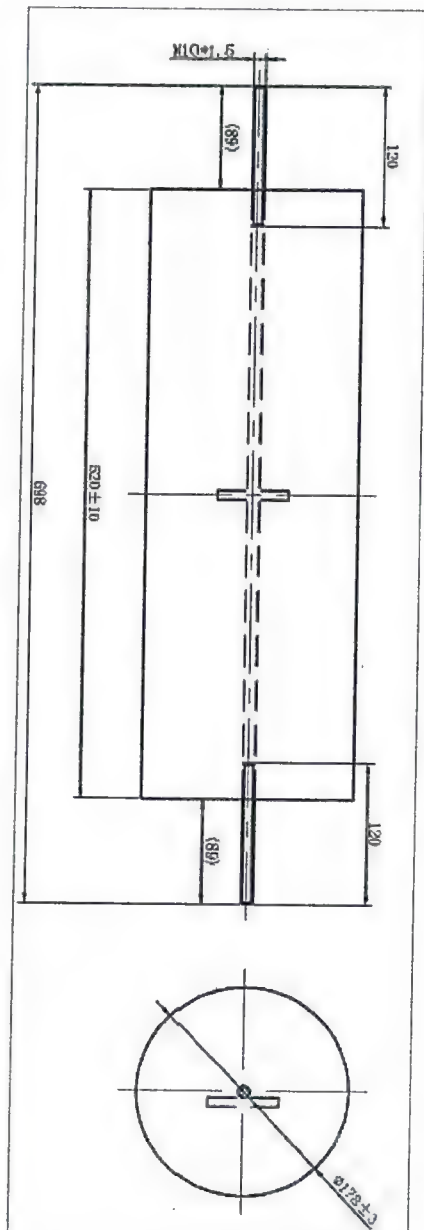
STANDARD SPECIFICATION	
Electrolyte	Saturated Copper Sulphate Gel (98.4% Min Purity Cu/SO ₄ crystals)
Electrode Body Materials	High Temperature Fired Ceramic and Ion Trap.
Weight (Gross)	Approx 1kg net weight
Dimensions	Approx 36mm Dia x 200mm (Bare Dimensions)
Cable	1c x 16mm ² XLPE/PVC stranded copper conductor cable, 600/1000V grade, black, 300m length For Crude Oil Tanks / 160m Long for Fire Water Tanks

Quantity : 783 No for Crude Oil Storage Tanks
42 No for Fire Water Tanks



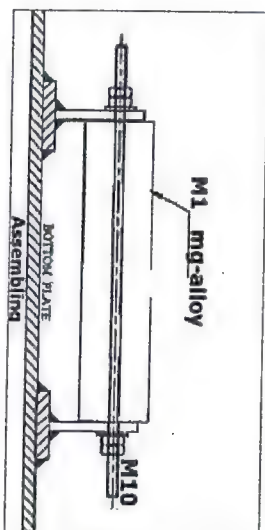
BAC
CORROSION CONTROL

BAC Corrosion Control Ltd
Stafford Park 11 • Telford • TF9 3AY
United Kingdom
T: +44 (0) 1952 290 321
E: sales@bacgroup.com
W: www.bacgroup.com



ALLOY COMPONENTS

Cu	0.06	MAX
Al	5.3	- 6.7
Si	0.3	MAX
Fe	0.005	MAX
Mn	0.25	Min
Ni	0.03	MAX
Zn	2.5	- 3.5
Pb	0.03	MAX
Mg	Remainder	



BAC
CORROSION CONTROL

170 Series Digital Multimeters

Versatile meters for field service or bench repair

These meters have the features needed to find most electrical, electro-mechanical and heating and ventilation problems. They are simple to use and have significant improvements over Fluke's original 70 Series like, True-RMS, more measurement functions, conformance to the latest safety standards, and a much larger display that's easier to view.

Features

True-RMS measurements			
Digital display counts, updates 4 times per second	6000	AC	179
Display backlight	6000	AC	177
Auto and Manual ranging	6000	AC	179
Display Hold and AutoHOLD	6000	AC	179
Min-Max-Average recording mode with Min/Max Alert	6000	AC	179
Temperature readings (lead thermocouple probe included)	6000	AC	179
Smoothing mode allows filtering of rapidly changing inputs	6000	AC	179
Audible continuity and diode test	6000	AC	179
Test lead alert	6000	AC	179
Unsafe voltage alert warns for voltages above 30V	6000	AC	179
Low battery indication	6000	AC	179
Ergonomic case with integrated holster	6000	AC	179
Easy battery and fuse exchange without opening the complete case	6000	AC	179
Selectable sleep mode preserves battery life	6000	AC	179

Specifications

Functions	Maximum	Min. resolution
Voltage DC	1000V	0.1mV
Voltage AC	1000V	0.1mV
Current DC	10A	0.01mA
Current AC	10A	0.01mA
Resistance	50M Ω	0.1 Ω
Capacitance	10000pF	1nF
Frequency	100kHz	0.01Hz
Temperature	-40°C/+400°C	0.1°C

Accuracies are best accuracies for each function

Battery Life: Alkaline, 200 hrs typical
Size (HxWxD): 190 mm x 85 mm x 45 mm

Weight: 0.42 kg
Lifetime Warranty

179	177	179
$\pm(0.15\%+2)$	$\pm(0.09\%+2)$	$\pm(0.15\%+2)$
$\pm(1.0\%+3)$	$\pm(1.0\%+3)$	$\pm(1.0\%+3)$
$\pm(1.0\%+3)$	$\pm(1.0\%+3)$	$\pm(1.0\%+3)$
$\pm(1.5\%+3)$	$\pm(1.5\%+3)$	$\pm(1.5\%+3)$
$\pm(0.9\%+1)$	$\pm(0.9\%+1)$	$\pm(0.9\%+1)$
$\pm(1.2\%+2)$	$\pm(1.2\%+2)$	$\pm(1.2\%+2)$
$\pm(0.1\%+1)$	$\pm(0.1\%+1)$	$\pm(0.1\%+1)$
$\pm(1.0\%+10)$		

Recommended Accessories



Included Accessories
Test leads with 4 mm lantern tips and protective cap, installed 9V battery and users manual. The 179 also includes the 80BK temperature probe.

Ordering Information

Fluke 175 True RMS Multimeter
Fluke 177 True RMS Multimeter
Fluke 179 True RMS Multimeter
Fluke 179/EDA2 Kit Electronics Combo Kit
Fluke 179/MAG2 Kit Industrial Combo Kit

DATASHEET

1.31

CABLE

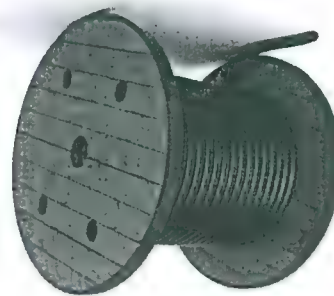


CABLE XLPE/PVC TYPE

BAC Corrosion Control Ltd supply a wide range of cables for Cathodic Protection systems.

We can advise you on the correct cable to use for your application and can cater for minimum order quantities, custom markings and insulation colour as required.

Our standard range of XLPE/PVC Cables are detailed as follows :



Quantity :
25,250m of 16mm² XLPE/PVC, Black
50,500m of 50mm² XLPE/PVC, Black

- Insulation: XLPE (Cross Linked Polyethylene) - Cross-linked polyethylene is a compound form of PE, which enhances the mechanical stability

- Sheath: PVC - is available in many compound forms but those used in cable manufacture are plasticized to allow extrusion techniques and subsequent flexibility. It has good ageing and mechanical properties. Can be supplied in Black or Red as standard.

- Conductor: Stranded or Solid Plain Annealed Copper.

- Application: Designed for use in cathodic protection systems. These cables are provided with PVC sheath for protection and are therefore suitable for external use and direct burial.

- Technical Data: Voltage: 600/1000V,

- Temperature Range: 20°C to +70°C

- Relevant Standards: Conductor: To BS6360 up to 35 mm²
To BS6346 above 50 mm²

- Sizes and Dimensions

All sizes and dimensions are approximate and for information only. BAC will confirm actual dimensions at time of order if required:

CORROSION CONTROL
BAC
BAC Corrosion Control Ltd
Stafford Park 11 • Telford • TF3 3AY
United Kingdom
T: +44 (0) 1952 290 321
E: sales@bacgroup.com
W: www.bacgroup.com

MIXED METAL OXIDE ANODES RIBBON TYPE SPOT WELDER

A portable spot welding kit that allows quick and easy connections between the MMO/Ti Tibbon Anode and Titanium Conductor Bar.

DATASHEET 1.11

SPOT WELDER



Quantity : 65 No

TECHNICAL SPECIFICATIONS	
Max. Welding Thickness (mm)	1+1
Input Voltage	230 V
Dimensions	440x110x185 mm
Rated Power	1.2 kW
Max. Absorbed Power	6 kW



BAC[®]
CORROSION CONTROL

M MEMBER OF
MIDROC EUROPE



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.03- Motor Datasheets



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.04- Electrical Cables Schedule

GE+AI:LI	Cable Mark	GL1	FROM	TO	GL2	CABLEService	Service Voltage	KW	Size	Type	L
56	P-030-T03-CPTR	WP	030-EPMA3-LVSWG-I (A2.4)	CP Transformer for Grade Tank	WP	3PH POWER FEEDER	400VAC	15	3x35	3C	300

MCC ROOM

EGPC
BOUTON (2202C)

المركبات؛ مخبريات السورس

FARM -1- IRING DIAGRAM

البشر^١ كما العنصرية للمنافعات البترونية والكيمائية

تاریخ ہندوستان

ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

NONE | 01251-100-030-EWI-001ms9 OF 078 | 0

AD 5116 297 X 420



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.05- Electrical Cables Laying Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.06- Electrical Cables Testing Certificates



Enppi

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

REF-177

INSTRUMENT TYPE:

INSPECTION DATE & TIME

DOCUMENT NO.
ITR-EL-0006A

SYSTEM NO.:

SHEET NO

DISCIPLINE
ELECTRICAL

SERIAL:

TEST VOLTAGE:
1kv

AREA / PACKAGE:

N O	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE "M.Ohm"			PHASE TO NEUTRAL "M.Ohm"			PHASES & NEUTRAL TO ARMOR "M.Ohm"			RESULT	
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	Pass	FAIL
1	P-AG030-TR-004	3x10	✓										✓	
2	P-AG030-TR-005	3x10	✓										✓	
3	P-030-103-CPTR	3x10	✓										✓	
4	P-030-103-CPTR	3x10	✓										✓	
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														

Remarks :-

Reference :-

PETROJET		ENPPI		PMC	
NAME					
SIGNATURE					
DATE					

ITR-EL-0006A



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.07- Electrical Cables Termination Certificates

Owner: **Egyptian General Petroleum Corporation (EGPC)**

Project No: 01251-100-030
:01251-100-031

Contractor	CONSORTIUM (ENPPI / PETROJET)
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Document No: ITR-QC-0001
Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY: PERMANENT REFERENCE ELECTRODE & MONITORING PIPE

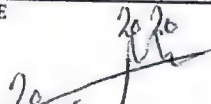
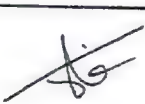
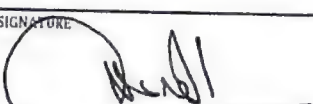
NOTIFICATION NO. : PTJ-ELE-RFI-007 DISCIPLINE: CATHODIC PROTECTION

DATE: _____ 20-5-2020

[illegible]

NOTE:

Inspection result : **A** - Approved **B** - Reject **C** - Approved with Comment

PETROJET		ENPPI	
NAME: Mustafa Ibrahim Islam Gaballah		NAME: A. El Beroudy	
SIGNATURE: 		SIGNATURE: 	
DATE: 20.5.2020	20/5/20	DATE:	

ITR-QC-0001



EGPC CRUDE OIL TANK FARM AGROOD
AREA (MODULE 1 & 2)



PETROJET
The Petroleum Projects and
Technical Consultations Co.
One of the Egyptian General Petroleum
Corporation Companies

INSPECTION AND TEST REPORT FOR

PERMANENT REFERENCE ELECTRODE & MONITORING PIPE

INSPECTION REPORT NUMBER

INSPECTION DATE & TIME

DOCUMENT No.

DISCIPLINE

SHEET NO

ITR-CP-0002

ELECTRICAL

1 OF 1

JOB DESCRIPTION

CATHODIC PROTECTION SYSTEM

AREA DESCRIPTION

030-T-01

ITEM / TAG NO.

DRAWING NO.

LOCATION

030-T-04-CP

1251-100-116-02-XX-D99-023

AGROUD AREA MODULE 01

NO.	INSPECTION	RESULT		
		ACCEPT	REJECT	N/A.
1	RE visually inspected for damage and tested prior to installation	✓		
2	Location of reference electrode correct	✓		
3	Location of monitoring tube correct	✓		
4	Reference electrode calibration test - measure potential to a calibrated portable CSE RE immersed in fresh water along with the permanent RE to be tested. Potential difference shall be within $\pm 20\text{mV}$	✓		
5	Elevation of reference electrode (m) as relevant drawing	✓		
6	Monitoring tube installed straight and free from inside obstructions	✓		
7	Reference electrode quantity as relevant drawing	✓		
8	Reference electrode spacing	✓		
9	Carefully selected backfill installed around anode which is free from rocks, boulders and metallic debris	✓		
10	Structure-to-electrolyte potential recorded with the permanent reference electrode			✓
11	Cables have no physical damage with sufficient slack cable to permit removal of terminated cables from terminals	✓		
12	Reinstatement completed and waste materials removed from site	✓		

REMARKS:

PETROJECT		ENPPI	
NAME:	Mostafa Ibrahim	NAME:	A. ElBarady
SIGNATURE		SIGNATURE	
DATE	20.5.2020	DATE	20/5/20

ITR-CP-0002



Project No: 01251-100

Document No: ITR-QC-0001

Revision No. : 01

REQUEST FOR INSPECTION

ACTIVITY : INSPECTION ON MMO RIBBON & CONDUCTOR BAR

NOTIFICATION NO. : PTJ-ELE-RFI-005



DISCIPLINE : CATHODIC PROTECTION

DATE: 4/15/2020

[illegible]

A:Accpeted B:Rejected C:Approved with comments

NOTE:

PETROJET		ENPPI	
NAME :		NAME	
Humein Ali		Ayman Bakir	
SIGNATURE		SIGNATURE	
			
DATE		DATE	
4/5/2020		04-05-2020	

ITR-OC-0001



EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

MMO RIBBON & CONDUCTOR BAR.

INSPECTION REPORT NUMBER PTJ-ELE-RFI-002	INSPECTION DATE & TIME	DOCUMENT No. ITR-CP-0001	DISCIPLINE ELECTRICAL	SHEET NO 1 OF 1
JOB DESCRIPTION EXTERNAL CATHODIC PROTECTION SYSTEM FOR CRUDE OIL TANK		AREA DESCRIPTION 030-T-01		
ITEM / TAG NO. 030-T-04-CP	DRAWING NO. 1251-100-116-02-XX-D99-022	LOCATION AGROUD AREA - MODULE 01		

NO.	INSPECTION	RESULT		
		ACCEPT	REJECT	N/A.
1	Anode installation area free from metallic debris prior to installation and level	✓		
2	Anode visually inspected for damage prior to installation	✓		
3	MMO Ribbon installed as relevant drawing	✓		
4	Conductor Bar installed as relevant drawing	✓		
5	Continuity test shall be conducted between Conductor bar and MMO anode prior to backfilling	✓		
6	All spot welding at crossing locations visually inspected and checked	✓		
7	Power feed connectors installed at correct locations as relevant drawing	✓		
8	Power feed cables have no physical damage with sufficient slack cable to permit exit from ring beam and termination in junction box	✓		
9	Continuity test shall be conducted for all Power feed cables before and after backfilling.	✓		
10	No Interference or contact with the tank external surfaces	✓		
11	Cable routing	✓		
12	Carefully backfill sand over anode to required depth under the tank which is free from rocks, boulders and metallic debris	✓		
13	Output current measurement at power feed cables			✓
14	Waste materials removed from site	✓		

REMARKS:

PETROJET		ENPPI	
NAME:	Hussein Ali	NAME:	Ayman Bakeir
SIGNATURE		SIGNATURE	
DATE	4/5/2020	DATE	04-05-2020

ITR-CP-0001

**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001
Revision No. : 00**REQUEST FOR INSPECTION**

ACTIVITY : cable termination and splicing

NOTIFICATION NO. : PTJ-ELEC-RFI-179 DISCIPLINE : E&I

DATE : 4/26/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
	cable termination	MODULE 1	26-Apr-21				
1	P-AG030-TR-004						
2	P-AG030-TR-005						
3	P-030-T03-CPTR						
4	XXXXXXXXXX						
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

NOTE: 1- plugs to be installed in transformer side (Done) Sch
2- 5.5 tag for the cables to be installed (Done) Sch

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME		Sherif	
SIGNATURE			
DATE			

ITR-QC-0001

INSPECTION AND TEST REPORT FOR
CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE & TIME

ITR NUMBER

DISPLINE

SHEET NO

PTJ-ELE-RFI-179

ITR-EL-0009

ELEC

1 OF 1

Item/Tag NO.

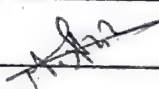
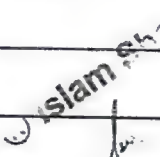
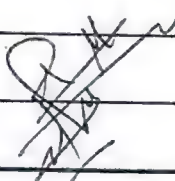
Type :-

Core:

Size:

NO.	Description of check	RESUNT		
		ACCEPT	REJECT	N/A.
1	Check cable glands are correct type and size as per cable schedule.	✓		
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.	✓		
3	Check cable tag is done correctly.	✓		
4	Test and confirm conductor, phase continuity.	✓		
5	Check insulation resistance test (megger) is completed *I	✓		
6	Check Hi-pot test is completed, only for MV/HV cables *II			✓
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓		
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications			✓
9	Check enclosure cover is installed , no damages and no bolts are missing	✓		
10	Calibration test certificate of testing equipment to be checked.	✓		

Remarks :

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-EL-0009



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.08- FAT Reports & Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.09- SAT Reports & Certificates



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.10- Electrical Pre-Commissioning Check Lists



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

12.11- Electrical Supplier Check Lists & Reports

System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

13- Electrical Commissioning



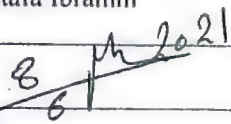

Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

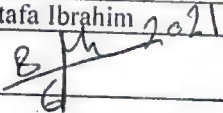
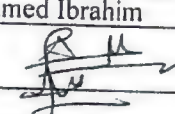
13.01- Electrical -Commissioning Check Lists

PROJECT	EGPC STORAGE TANKS	
LOCATION	AGROOD	
CLIENT	PMC	
SUPPLIER	PETROJET	
MANUFACTURE	BAC	
TANK SERVICE	TANK 30-TK-03	
Pre-Commissioning Check Sheet for Transformer Rectifier Unit		
CHECK LIST	TEST / CHECK REPORT	
Transformer Rectifier Unit / Location	OUTSIDE BUND WALL	
Rectifier Manufacturer	BAC	
Rectifier Type / Serial Number	OIL COOLD	
Rectifier Rating	AC Input	3 PHASE
	DC Output	50 A / 150 A
All Cables (AC / DC) are properly terminated identified with proper tagging	OK	
Transformer Rectifier is properly grounded to the earthing system.	OK	
Oil Gauge, Silica Gel Breather & Fuse are properly fixed and secured without any damages.	OK	
T/R Unit is filled with suitable type of cooling oil at the required level.	OK	
Confirm TRU enclosure is earthed properly	OK	
Remarks		

	COMPLETED BY	WITNESSED BY
Company	PETROJET	PMC
Name	Eng. Mostafa Ibrahim	Eng. Mohamed Ibrahim
Signature		
Date	8/ 6/ 2021	

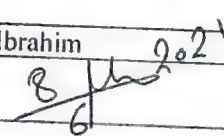
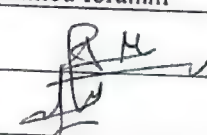
Cathodic Protection Commissioning Report

PROJECT	EGPC STORAGE TANKS	
LOCATION	AGROOD	
CLIENT	PMC	
SUPPLIER	PETROJET	
MANUFACTURE	BAC .	
TANK SERVICE	TANK 30-TK-03	
Pre-Commissioning Check Sheet For Junction Boxes (Anode Junction Boxes)		
CHECK LIST		TEST / CHECK REPORT
Confirm Location		Outside Bund Wall
Physical Condition (Internally & Externally)		OK
Number of Circuits		17
Junction box is properly mounted and secured on the frame		OK
All cables are properly terminated inside the junction box unit		OK
Remarks	17 circuits divided into 2 anode junction boxes: - - 10 and 7	

	COMPLETED BY	WITNESSED BY
Company	PETROJET	PMC
Name	Eng. Mostafa Ibrahim	Eng. Mohamed Ibrahim
Signature		
Date	8/ 6/ 2021	

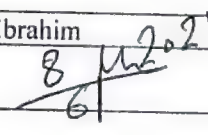
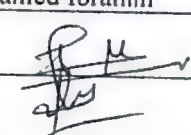
Cathodic Protection Commissioning Report

PROJECT	EGPC STORAGE TANKS		
LOCATION	AGROOD		
CLIENT	PMC		
SUPPLIER	PETROJET		
MANUFACTURE	BAC		
TANK SERVICE	TANK 30-TK-03		
Pre-Commissioning Check Sheet for Test Posts (Galvanized Steel Type)			
CHECK LIST		TEST / CHECK REPORT	
Test Post Location		Outside Bund Wall	
Number of Cables Terminated		23	
Physical Condition (Internally & Externally)		OK	
Test Post is properly mounted and secured on the test post conduit.		OK	
All cables are properly terminated inside the big fink.		OK	
Remarks	23 circuits divided into 5 test points 4 TP.1 - 5 TP.2 - 5 TP.3 - 5 TP.4 - 4 TP.5		

	COMPLETED BY	WITNESSED BY
Company	PETROJET	PMC
Name	Eng. Mostafa Ibrahim	Eng. Mohamed Ibrahim
Signature		
Date	8/ 6/ 2021	

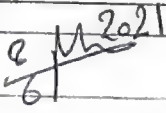
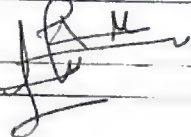
Cathodic Protection Commissioning Report

PROJECT	EGPC STORAGE TANKS		
LOCATION	AGROOD		
CLIENT	PMC		
SUPPLIER	PETROJET		
MANUFACTURE	BAC .		
TANK SERVICE	TANK 30-TK-03		
Commissioning Check Sheet for Transformer Rectifier Unit			
Location : Agrood		Parameter Settings	
		Rated AC Input	400(V) /50 Hz
		Rated DC Output	50 (V) 150 (A)
Control Parameters		Adjusted	
DC Output Voltage		2.3 (V)	
DC Output Current		1.3 (mA)	
Overall Circuit Resistance		1.7 KOHM	
REMARKS:			

	COMPLETED BY	WITNESSED BY
Company	PETROJET	PMC
Name	Eng. Mostafa Ibrahim	Eng. Mohamed Ibrahim
Signature		
Date	8/ 6/ 2021	

Cathodic Protection Commissioning Report

PROJECT	EGPC STORAGE TANKS			
OWNER	AGROOD			
SUPPLIER	PETROJET			
MANUFACTURE	BAC			
TANK SERVICE	TANK 30-TK-03			
Commissioning Check Sheet For Structure-To-Soil Potential Measurement (Test Post Location)				
Test Post location				
TEST NO.	TEST FACILITY		POTENTIAL	REMARKS
	TYPE	Location	ON - POTENTIAL V	
1	GALVANIZED STEEL	OUTSIDE BUND WALL	- 1 / -1.2 / -1.1 / -0.9	Accept
2	GALVANIZED STEEL	OUTSIDE BUND WALL	-1 / -1.2 / -1.2 / -1.2 / -1.2	Accept
3	GALVANIZED STEEL	OUTSIDE BUND WALL	-1.2 / -1 / -1.3 / -1.2 / -1.2	Accept
4	GALVANIZED STEEL	OUTSIDE BUND WALL	-1 / -1.2 / -1.1 / -1.2 / -1	Accept
5	GALVANIZED STEEL	OUTSIDE BUND WALL	-0.9 / -1.1 / -1.2 / -0.85	Accept
Reference Electrode (Type): CU/CUSO4				
General Notes:				

	COMPLETED BY	WITNESSED BY
Company	PETROJET	PMC
Name	Eng. Mostafa Ibrahim	Eng. Mohamed Ibrahim
Signature		
Date	8/6/2021	

System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

13.02- Electrical Supplier Check Lists & Reports



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

14- Red Marked-up Drawings



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

14.01- P&ID

System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

14.02- Instrumentation Drawings



Project: 01251-100
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-CP-004
System Description	Tank-03 Cathodic Protection System

14.03- Electrical Drawings